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SEAPORT STUDY

Prepared for:

BOSTON REDEVELOPMENT AUTHORITY

E. G. Frankel

April, 1973

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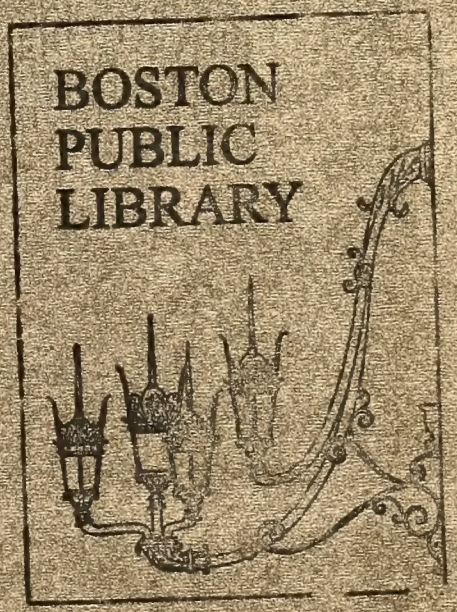

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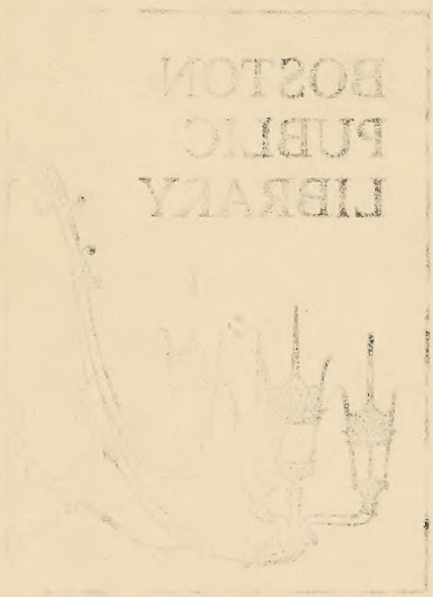

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Second Draft

SEAPORT STUDY

Prepared for

BOSTON REDEVELOPMENT AUTHORITY

E. G. Frankel

April, 1973

Acknowledgements

This second draft of the Seaport Study is an updated version of a report of the same title submitted in 1969. The scope of this work only encompasses an updating of the relevant statistics and review of the earlier report's recommendations. The assistance of various members of the staff of the Massachusetts Port Authority and in particular the Director of the Seaport, Mr. T. Soules, in the assembly of current data is gratefully acknowledged.

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Executive Summary

1) Major investments have been made in Container Handling Facilities. This has resulted in a rapid increase in the number of containers (20' equivalents) handled and now runs at about 42,000/year.
2) General and dry bulk cargo flow continues to decrease, a trend which is expected to accelerate.
3) Petroleum and Petroleum product flows continue to increase. This trend will be amplified by the landing of LNG at the Dorchester and Everett terminals.
4) The new Mystic (Schiavone) Container terminal operates well and has been able to attract a reasonable container flow. Its capacity is expected to meet all near and medium term requirements (at least until 1977).
5) The Castle Island (Sea Land) container terminal is currently only used by Sea Land for limited feeder service from New York. The lease terms do not permit the MPA to force alternate use on the lessor.
6) The general cargo piers at Castle Island and Army Base are grossly under-utilized. It is recommended that the MPA Castle Island piers be converted into a container terminal for use by 1975-76. This should provide at least two new container berths, 10-15 acres of marshalling area, a container consolidation center, and excellent access and regress routing.
7) The Army Base piers provide more than ample capacity for all projected general cargo (including auto import) handling requirements.
8) As it is now obvious that deep draft offshore petroleum port developments on the North Atlantic seaboard will be delayed to at least 1978, and as foreign imports of residual and other petroleum products will continue to rise more rapidly than consumption (as larger percentages

of N.E. consumption are imported), it becomes imperative to develop at least an interim facility to handle larger tankers. The economics of transport of oil in larger tankers become more pronounced with increasing distance of haul. A simple 45'-50' draft terminal off Deer Island as proposed could save nearly $2.0 million per year in transportation costs (assuming 1972 imports alone). Additional savings accrue from larger imports and more economic domestic petroleum transportation.

9) The development of a new container terminal in East Boston does not appear attractive or required.

10) The imminent release of the Boston Army Base and Navy South Annex which may be declared surplus property by the Federal Government offers new opportunities which should be investigated without delay. In particular, attention should be given to the use of this area as a city-port interface which may include among other activities:

1) Fishboat and ship repair facilities
2) Active commercial areas
3) Light marine oriented manufacture and assembly
4) Marine oriented exhibition and convention facilities
5) Recreational facilities

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I. Introduction

The significance of the seaport to the economic and social wellbeing of the city of Boston and surrounding communities has, in recent years, been questioned. The seaport has suffered large reductions in general cargo movements in ships and throughput which historically provide the bulk of port revenue and employment. It got off to a late though determined effort to become a major East Coast container port. Problems such as labor intransigence, loss and pilferage rates had discouraged earlier or more timely developments. Its rates and charges are among the highest of any East Coast port, while labor productivity has consistently been among the lowest for comparative cargoes. In addition the port is composed of a proliferation of facilities, many old and decrepit, spread over miles of waterfront and separated by tangles of congested roads. Access to many facilities leads through narrow streets, without effective connection to major arteries. As a result, large shippers and receivers, including many located in metropolitan Boston or the New England region are moving their trade through other ports, primarily New York.

New England Regional exporting industry is primarily composed of high value, low volume producers which largely eliminates their economic dependence on the port of Boston.

As a result the Port attracts little local or transit export trade, and only limited regional imports, which in turn result in infrequent foreign sailing schedules. In addition, the port is usually the first port of call on a multi-port ship from Europe run which benefits some import deliveries but eliminates competitiveness in export trade.

Prospective future shipping demand and resulting port facility requirements must be examined as a function of and its effects on regional and urban development as well as regional economics. In addition the social impact on the city must be

introduced in any reevaluation of seaport facility use and development.

Boston has important goals and objectives in urban development which can be greatly facilitated by a rational use or reassignment of functions of redundant seaport property and facilities. While originally the commerce of port was, to a large extent, handled by the piers in the city proper, such as along the Atlantic Avenue wharves, these piers, if active, are now normally only used by small boats, passenger vessels and fishing craft. Various plans for more effective use of inner city piers have been developed. In addition, many South Boston, East Boston and Charlestown piers are grossly underutilized and provide opportunities for redevelopment. The 158,646 lineal feet (30 miles) of berthing waterfront space available in the port may offer not only opportunities for urban redevelopment within the inner city, adjacent to blighted areas which are currently locked in by suburbs from access to employment opportunities, but also for the redevelopment of new extensive community industries designed to assure an effectively integrated community development.

It is the aim of this study to investigate use and requirements of the Port of Boston and the feasibility of coordinating the use of underutilized waterfront land and facilities for the purpose of urban redevelopment and the revitalized Boston Seaport. The respective interests, it is felt, are not conflicting but complementary, and we, therefore, offer recommendations which consider the future growth and effectiveness of the seaport as in integral part of a growing, healthy city of Boston, full of economic and social vitality.

A.) Purpose

It is the purpose of the seaport study to develop the expected activity and requirements of the seaport and use this information for the planning and conceptual design of an effective set of facilities that will satisfy the needs of the seaport for the medium and long range.

The facility need development was based on the premise that the seaport is an important asset of the City of Boston and essential for its continued growth, vitality, and social as well as economic well-being. The Boston seaport (controlled and administered by the Massachusetts Port Authority, M.P.A.) contains a large number of facilities under its ownership, control, or jurisdiction, which have little or no use for further seaport activities or developments, and which have had little or no utilization in the recent past. Many of these facilities offer important potentials for urban development, improvements in the city tax base, establishment of employment opportunities, housing (low and medium cost), and recreational facilities. We have therefore attempted to trade off facility and land use, based on the criteria of maximum benefit to the City of Boston and its environment, assuming the satisfaction of predicted future requirements, in a most efficient manner.

In addition to the obvious economic advantages offered by a seaport to its surroundings, the development of port requirements and facilities must include the essential relationships with various social and recreational needs of the community.

Port operations have, in recent years, become quite specialized and require effective and consolidated facilities to efficiently serve modern specialized ships. As a result, the proliferation of general purpose, old piers, common in most ports, is obsolete and must be changed if a port is to maintain a competitive position.

The City of Boston and its port suffer many of the socio-economic ills of other major seaboard cities in the United States by virtue of the blight accruing in the inner city, resulting from lack of employment opportunities along the waterfront, lack of recreational facilities, and the movement of middle and professional classes into the suburbs.

This state is particularly pronounced in Boston where industrial and recreational facilities have leapfrogged from the inner city into the suburbs. As a result, these opportunities are no longer accessible to inner city residents, locked in by the city on one hand, and the waterfront on the other hand.

As a result of these considerations, it has been our purpose to develop recommendations that will serve to eliminate those problems and provide the City of Boston with both a viable and competitive port, as well as meaningful employment and recreational opportunities along the waterfront. These opportunities will obviously have to be supported as a meaningful housing development. We strongly feel that the proposed plan provides enough flexibility to assure the integration of housing, employment, and recreational facilities, while maintaining an increasingly competitive, well-integrated port designed not only to serve the import need of the region, but also to attract export and complement the new industrial development of the city.

B.) Scope

The scope of this study, while limited to an evaluation of seaport requirements and conceptual study of necessary seaport facilities, concerns itself with the greater problem of a viable and prosperous city, and related environment.

Expected activity, if requirements are established on the basis of past cargo flows, as well as future flow requirements are estimated from growth figures of the region's

economy and population. Advantage was also taken of available data on recent successes in port development by other cities to establish most effective recommendations for facility requirements.

II. Expected Activity and Requirements

Introduction

Compilation Procedure

Certain acts and laws passed by state and federal governments require close surveys of all foreign and domestic cargo flow. Cargo flow statistics presented here were obtained from sources such as the U.S. Army Corp of Engineers, the U.S. Commerce Department, and the Massachusetts Port Authority. General cargo flow data was obtained from the period up to 1971. Since these statistics do not group specific cargoes with specific piers, an alternate survey approach was taken for cargo flows up to 1965. General conclusions about an individual pier's traffic flow were arrived by:

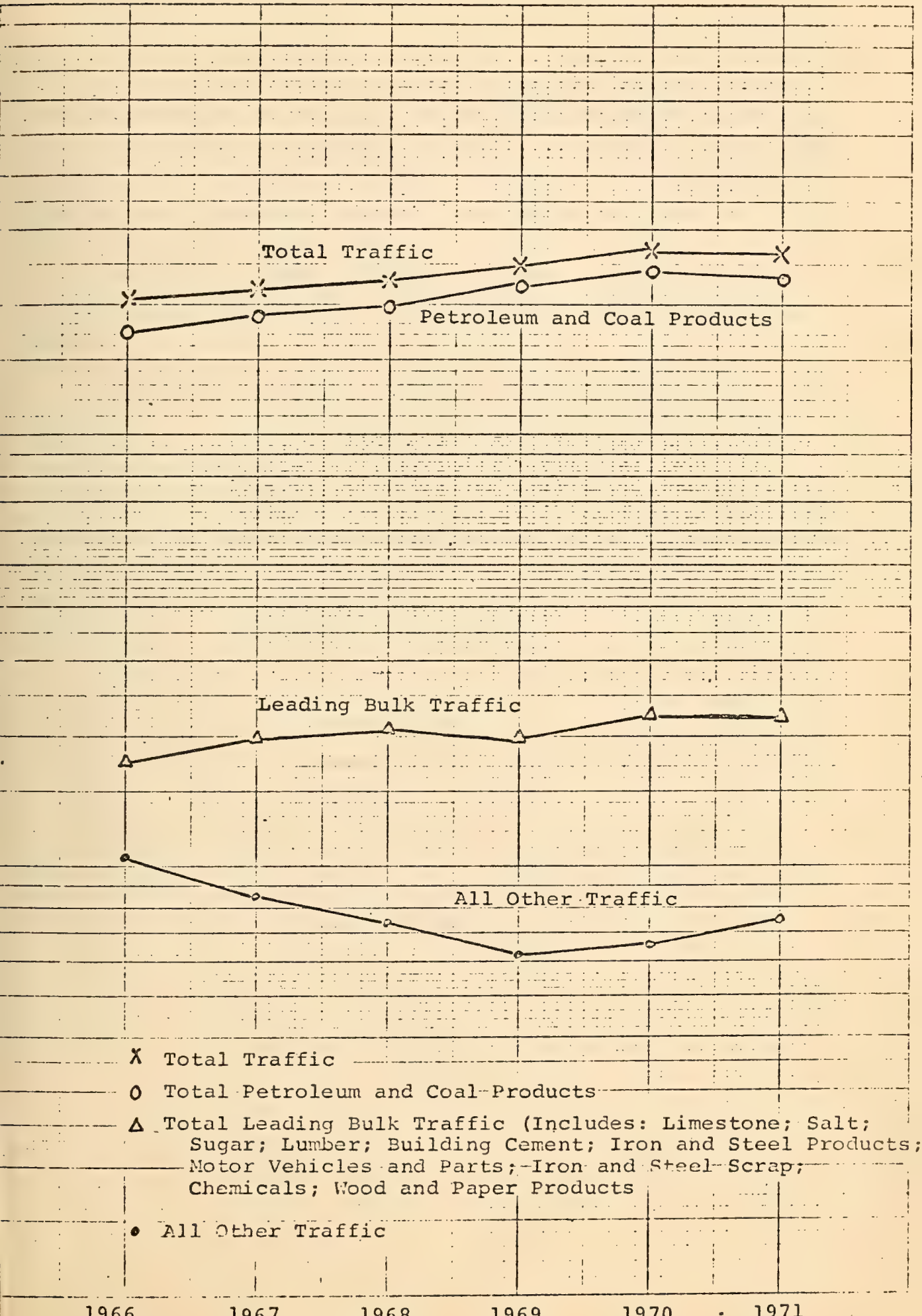
a. Noting the individual pier's ability to handle a specific cargo.
b. Comparing a specific cargo flow at the pier's general location to the same cargo flow in other areas (e.g. comparing the flow of iron and steel scrap on the Mystic River to the flow of iron and steel scrap on the main waterfront. Since specific piers for handling such commodities exist in both areas, an estimate for each pier's flow can be made).
c. The volumetric trend of a specific cargo measured against an individual pier's ability to handle said cargo.

Port of Boston: General Cargo Flow

It is quite obvious from looking at Figure II-1 of this chapter that petroleum products make up the largest volume of all Port of Boston traffic. Petroleum, as a major cargo commodity, has increased steadily over the past ten years. On the average it comprises more than 90 percent of the total commodity flow in the port.

Figure II-1

PORT OF BOSTON: TOTAL TRAFFIC


Total Traffic
Petroleum and Coal Products
Leading Bulk Traffic
All Other Traffic
X Total Traffic
O Total Petroleum and Coal Products
Δ Total Leading Bulk Traffic (Includes: Limestone; Salt; Sugar; Lumber; Building Cement; Iron and Steel Products; Motor Vehicles and Parts; Iron and Steel Scrap; Chemicals; Wood and Paper Products
• All Other Traffic
1966
1967
1968
1969
1970
1971

Grain, which in previous years was one of the port's leading exports, especially in the main waterfront and Mystic River areas, has completely vanished. In general, many of the leading bulk cargoes have either remained fairly stable or dropped appreciably in volume. The resulting trend is a leveling of bulk cargo flow.

Figure II-2 shows commodity flow by port area; minor traffic is omitted since it contributes little to the total flow.

The Chelsea River area, which moves only petroleum products, has the highest percent of total traffic. Crude petroleum has just about vanished as a leading commodity but jet fuel has taken up the slack.

The main waterfront area is now outranked by cargo flow through Mystic River piers and its traffic trends show a steady decrease. This is primarily due to persistent decreases in major commodities such as grain, kerosene and bituminous coal and lignite. Unfortunately this decreasing trend cannot be offset by other petroleum traffic which remains fairly stable.

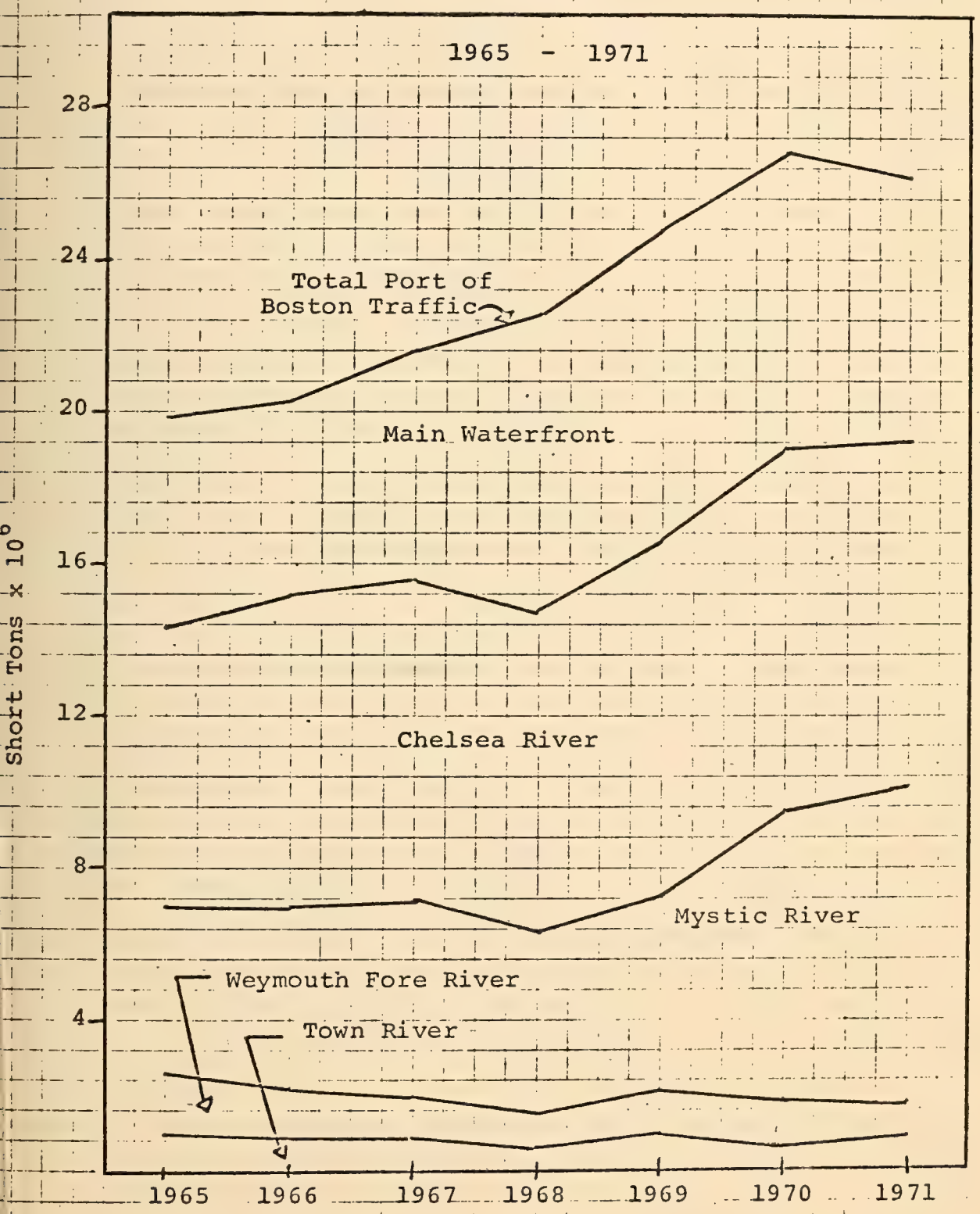
The traffic flow in the Mystic River is on an incline largely due to increases in sugar, iron and steel scrap, gypsum, certain petroleum products, and the new container movements over the new Mystic container terminal.

Weymouth, Fore River, and Town River jointly contribute less than 10 percent of the total cargo movements and remain quite stable, while traffic in Fort Point Channel has been cut to a point of minimum existence.

Figure II-2

PORT OF BOSTON

TOTAL TRAFFIC BY AREA



Massachusetts Port Authority Traffic

Port facilities owned by the Massachusetts Port Authority handle most of the general cargo and containerized cargo flow, while most of the dry and liquid bulk commodities are transferred over privately owned piers and jetties.

Petroleum and petroleum products far surpass any other product in major traffic, and average in excess of 23 million tons per year. This includes imports, coastal, and local movements to and from the Port of Boston each year. Of all the pier facilities under the jurisdiction of the Massachusetts Port Authority only one, Castle Island Terminal, berth no. 11, is capable of handling petroleum products. Castle Island is considered to be in the main waterfront area and handles on the average over six million short tons of petroleum and petroleum products per year. Castle Island has a sixteen-inch pipeline and two storage tanks holding a total of 290,000 barrels. When compared with five other private petroleum facilities on the main waterfront, which can store about 3.6 million barrels, Castle Island should be able to handle about 8 percent of the total main waterfront petroleum traffic, which is about 400,000 short tons per year. This is approximately 2-1/2 percent of the total Port of Boston petroleum traffic.

Mystic pier, which is capable of handling steel products, lumber, plywood, waste materials, and bulk vermulite, has kept a fairly steady but unimpressive traffic flow since it deals mainly in non-leading bulk cargoes. Hoosac pier is practically unused. Grain elevators previously at East Boston have recently been demolished. Those at Hoosac piers are reminiscent of a once-prosperous grain traffic , and are not used.

The scattered M.P.A. fish piers keep up a steady traffic in fish produce, but volume-wise cannot be compared to other port traffic.

Commonwealth piers handle basically tallow and animal fats in foreign exportation in volumes avaraging 50,000 short

tons in recent years. Although Commonwealth pier is one of the finest passenger liner piers in the United States, few regular transatlantic liner stops are made there, though an increasing number of cruise ships call at the pier.

Boston Army base and Castle Island seem to be capable of handling a much larger volume of general and liquid bulk cargo. Their combined volume now accounts for only about 20% of total commodity flow through the port, and less than 8% of the total in non-bulk cargoes.

Leading commodities such as sugar, gypsum, and petroleum products, which comprise nearly 90% of the total port traffic, are handled mainly by private companies. The fact that each of these products requires special handling and storage facilities limits the number of piers receiving such products to those having the special equipment needed. Another important factor is that large private corporations such as oil companies, sugar refiners, cement or gypsum manufacturers, etc. prefer their own to public port facilities. As they generally deliver their cargo in their own ships for their own distribution, they prefer to control the facilities equipment and operations at the terminals.

Activity Forecasting

Relative variations of traffic flows and patterns are difficult to predict from statistics which fluctuate as widely as those for the Port of Boston presented in Appendix A. Trends can be predicted only when such statistics are projected over many years. Petroleum traffic should keep the port's volume flow steadily increasing since other commodity flow is relatively small in comparison, yet petroleum movements also vary widely with weather conditions and other effects. Massachusetts Port Authority piers are primarily engaged in general cargo and containerized cargo flow. Boston Army Base and Castle Island piers would seem the best choice for a consolidated general cargo/container terminal, since both have

large storage capacities with room for expansion if necessary. Castle Island, with its modern container equipment and large storage space, is certainly capable of doing much more business than presently.

In conjunction with M.P.A. piers, there are a number of piers, docks and wharves in limited or non-use. They are listed in Appendix B along with a complete listing of all M.P.A. port facilities, including their location, ownership, operators, purpose for which used, handling facilities, etc.

Our activity and requirements forecast was based on two types of facility conditions:

a. The seaport continues its current mode of operation, using existing facilities but increases Castle Island container handling terminal use as well as increased utilization at the M.P.A. Mystic River Container Terminal.

b. If consolidated Boston seaport is established at South Boston using existing as well as Army Base and South Annex (Navy) properties.

Commodity flow projections were made using conventional forecasting techniques for expected flow, pessimistic flow and optimistic flow rates. The expected flow rates were based on a 2.2% growth rate of regional product and a 3% regional growth rate. The different commodity flow rates were furthermore adjusted to account for potential changes in:

a. Industrial activity distribution
b. Export commodity flow
c. Movement of Alaskan crude and regional refining capability establishment
d. Attraction of container cargo
e. Better feeder rates to and from the hinterland and other parts of the U. S.

A.) Activity Forecasts for 1975, 1980 and 1990

Introduction - In this section we disucss projected activity in the seaport of Boston for the years 1975, 1980 and 1990. These forecasts are dependent on major assumptions of social, political, technological and economic developments.

We confine ourselves to the impact of technological and economic developments, aware that the resulting forecasts may differ from actual developments as a results of social and political implications or changes in federal, state or local policies. These implications are not readily forecasted and are therefore ignored. For example, if the oil import quota restrictions are further changed or lifted, major changes in oil movement would occur which would almost certainly affect regional petroleum landings and distribution. Similarly, changes in the essential trade route structure or policy regulating subsidized U.S. flag merchant ships would affect the movement of general cargo in the seaport.

The establishment of deep water oil terminals on the atlantic seaboard would again affect oil movements and distribution in the seaport.

Port developments, labor productivity and changes will affect frequency of service, flow of general cargo, and the establishment of the seaport as a major container port. The above and many other factors influence the cargo flow or seaport activity. They similarly affect economic activity in the city and the region which in turn, again, affect seaport activity. In other words, we have a feedback effect. A growing, viable, dynamic seaport alert to all opportunities, and ability to timely respond to changing conditions, technology, and opportunities, greatly enhances the viability and growth of local and regional economy thereby creating additional seaport activity.

It must therefore be recognized that the seaport is not an isolated economic activity but an integral part of the local

and regional economy.

II A 1.) General and Dry Bulk Cargo

Boston Seaport traffic flow has barely maintained a growth as indicated in Figure 1 and 2. Its prime component of total traffic is still petroleum and while imports have decreased, domestic receipts and shipments of petroleum and petroleum products (largely heating oil) have increased.

Details of the commodity flow and its distribution over the facilities of the Boston Seaport are presented in Appendix A. The port presently (1971) handles about 750,000 ST of general cargo in foreign trade, of which about 650,000 ST are imports, out of a total foreign trade of 7.8 million ST. This is a decrease of about 1.5 million tons in foreign trade of which about 100,000 tons is general cargo. General cargo in domestic trade has been subjected to a similar reduction. The rest of the import cargo consists of gypsum, sugar, salt and molasses, while scrap and tallow account for over 90% of the export cargo. Nearly 90% of the domestic and local coastwise cargo consists of non-general goods. These cargoes are all low valued and are normally handled over specialized pier facilities. Figure 3 indicates the projected trend of general and bulk cargo flow through the Boston Seaport. An ever increasing percentage of general cargo is expected to be handled by containers. As a result, the total amount of dry bulk and general cargo handled in the port is projected to diminish.

The darkened areas indicate estimated proportions of general cargo handled in containers. The upper staggered lines indicate the total trade forecast if the port is successful in implementing attractive and successful conditions for container handling.

The total amount of bulk and general cargo expected to be handled in the port is shown by trade component. As

Fig. 1

BOSTON PORT TRADE

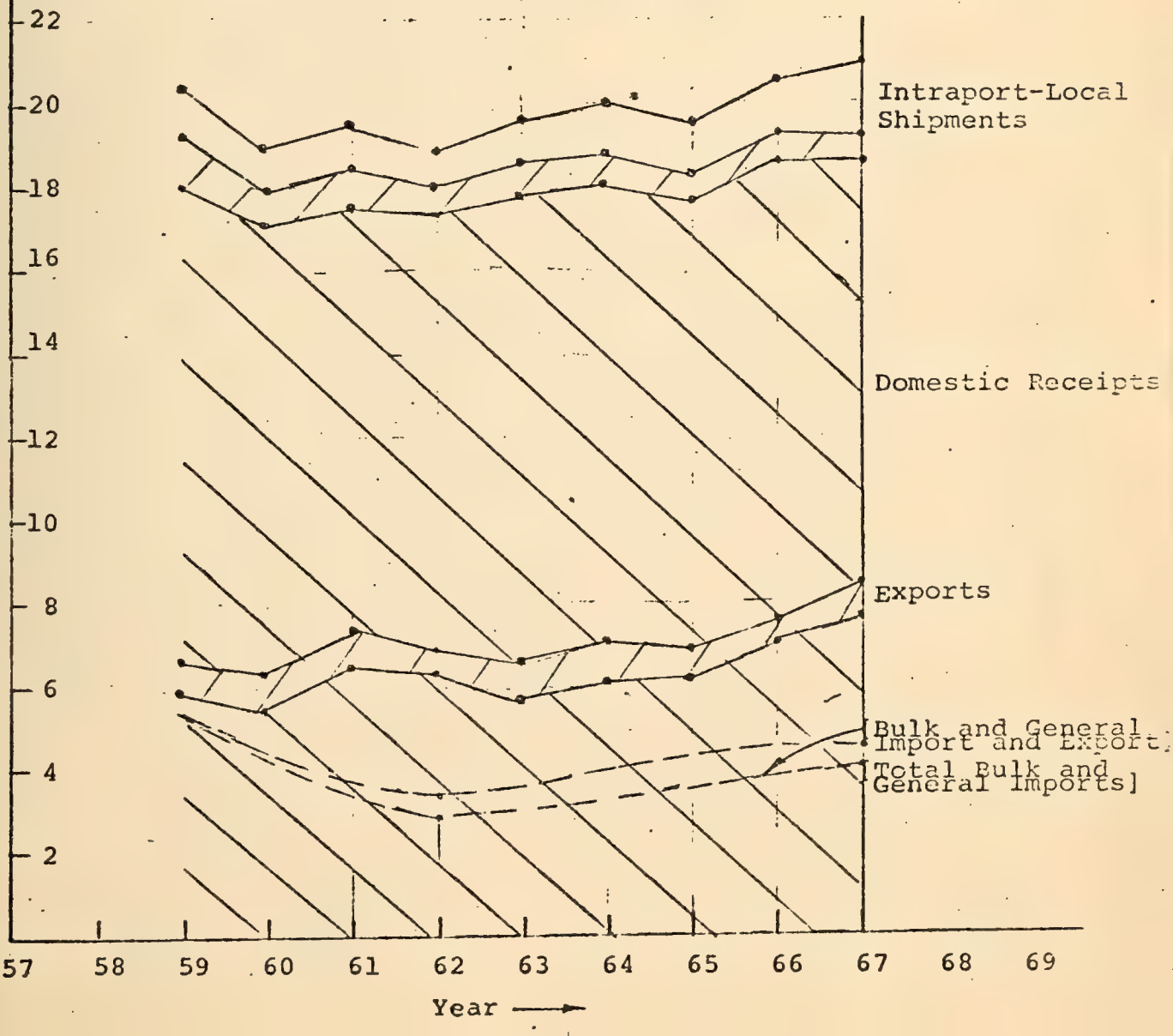
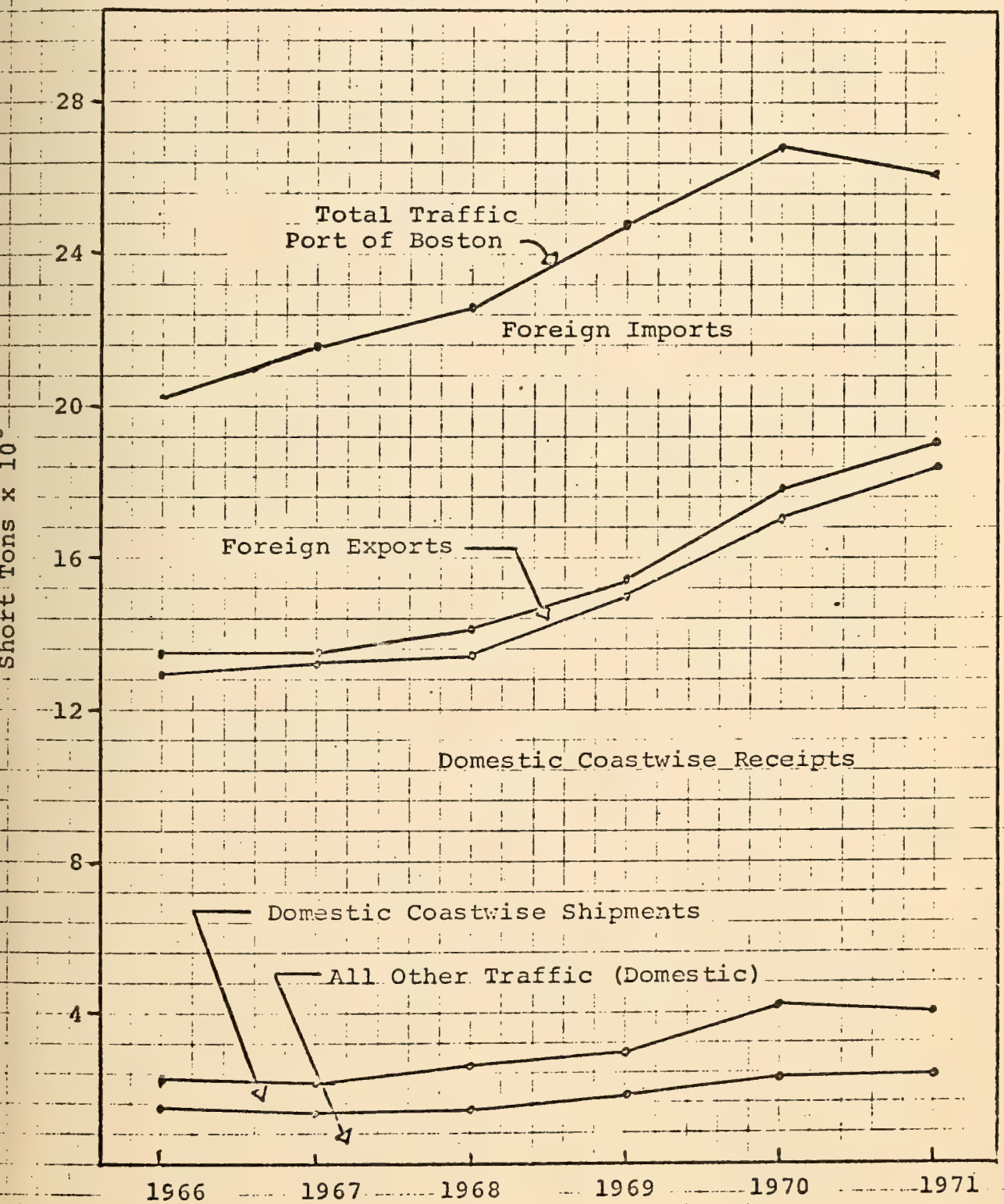


FIGURE 2

PORT OF BOSTON



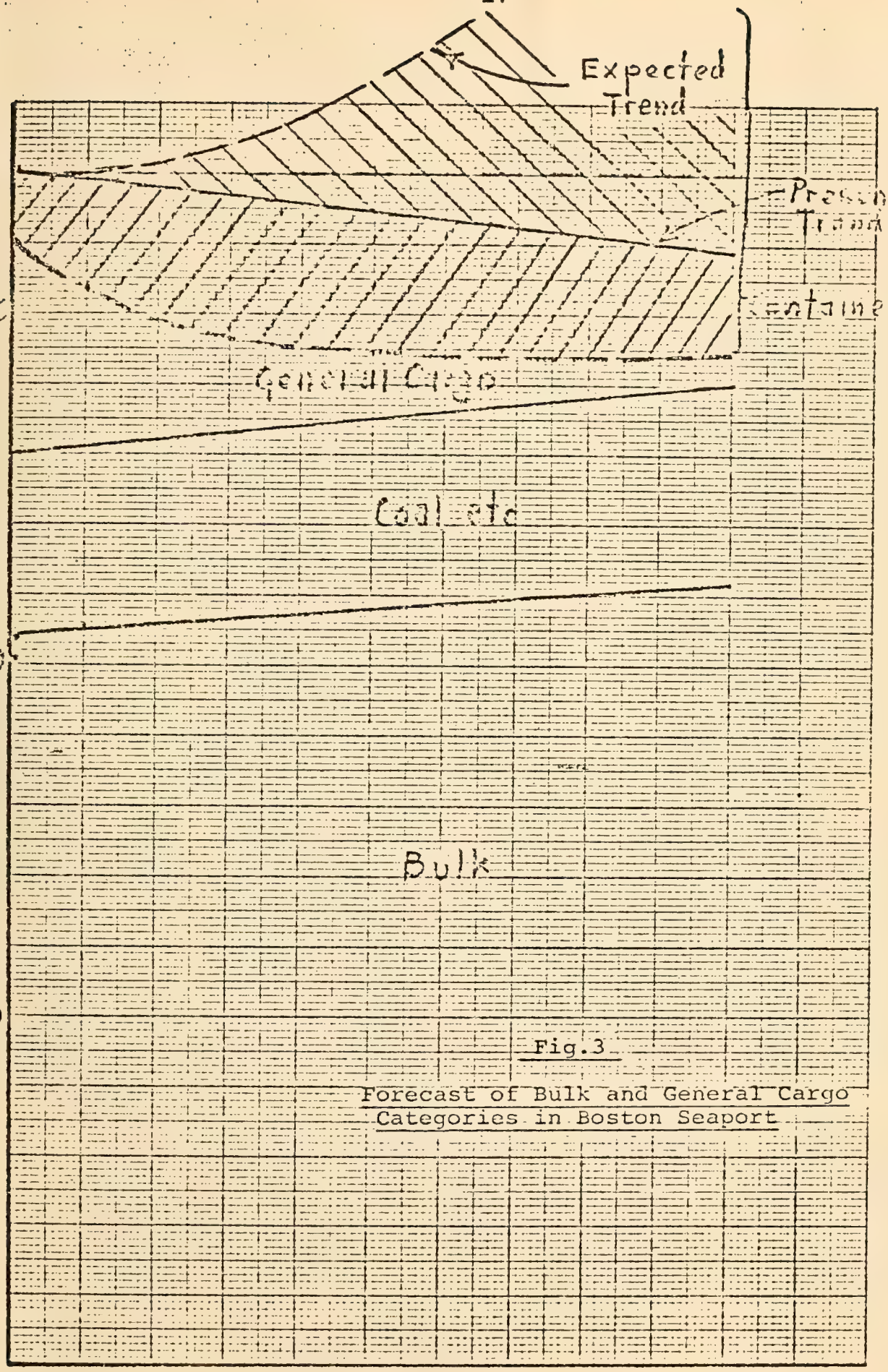


Fig.3

Forecast of Bulk and General Cargo Categories in Boston Seaport

40 MASS. AVE., CAMBRIDGE, MASS.
TECHNOLOGY STORE, H. C. S.
FORM 4 T

indicated, the general cargo component will continue to diminish even if effective containership handling facilities are established.

II A 2.) Containerized Cargo

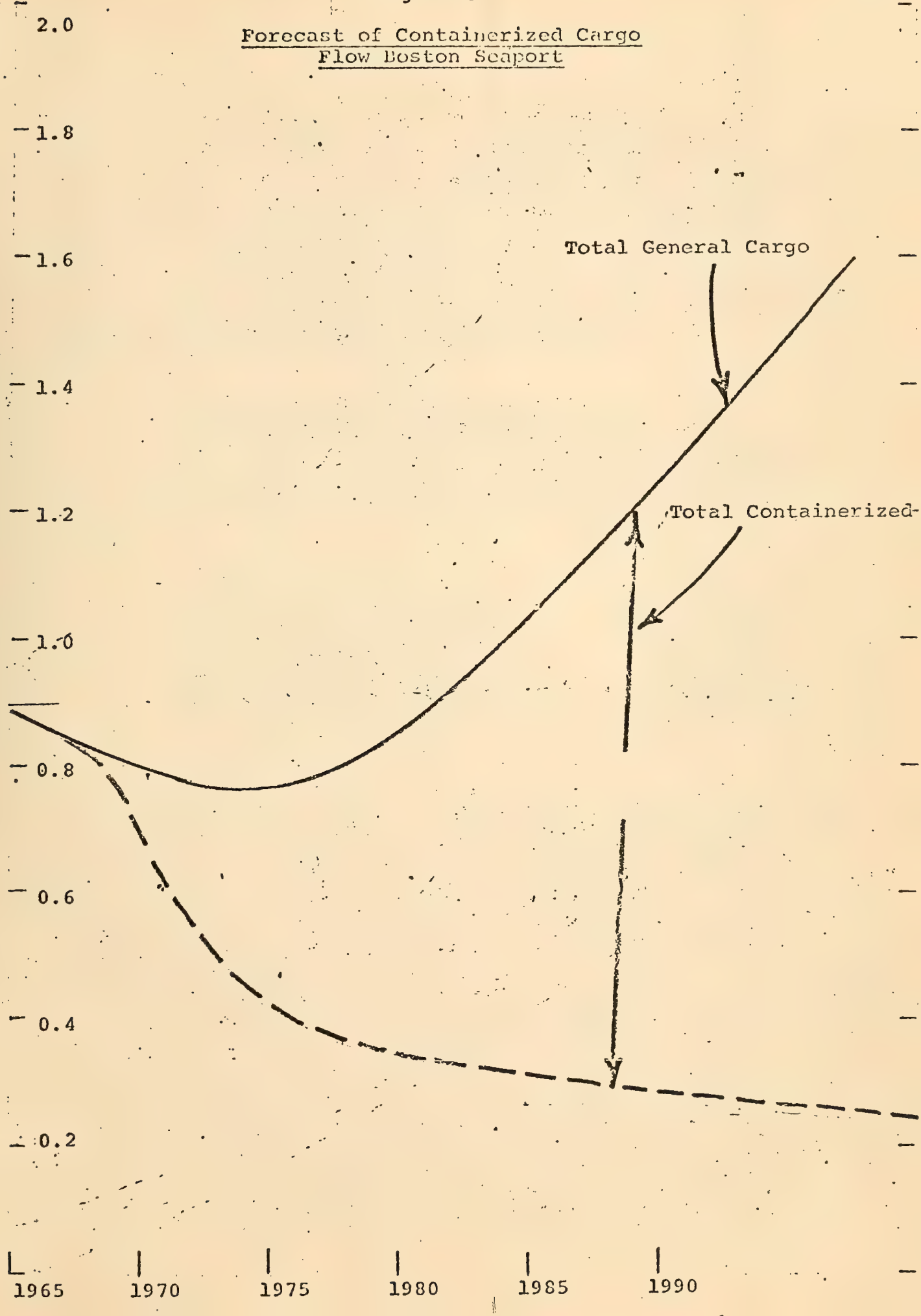
The number of containers handled in the Boston Seaport has increased from 26,460 in 1970 to 42,472 in 1971. Most of this cargo was handled over the new Mystic Container Terminal and consisted exclusively of foreign trade. A small number of containers are handled over the Castle Island Terminal by shuttle feeder service. Boston may increase the general cargo imports somewhat by continued improvements in containership service, but other opportunities exist in generating new export flow, most of which is containerizable. Only by such balanced flow conditions can container system operations be efficiently effected.

Container ships must call at a very limited number of ports in each trading area (preferably only one port) and must be able to closely balance loading and discharge to eliminate wasteful carriage of empty containers. Figure 4 shows the expected rate of flow based on the premise that total throughput, and U.S. inland feeder cost per container, will be at least as low as costs to equivalent inland points served by other East Coast Atlantic container ports. Only under such circumstances will the slight advantage of trans-atlantic distance, which Boston enjoys, attract the projected flow.

While containerized cargo flow at present is small, the above conditions could result in total containerized cargo flow per annum of 80,000 containers in 1975, 140,000 containers in 1980 and over 200,000 containers by 1990. This is equivalent to about 800,000 ST, 1,400,000 ST and 2,000,000 ST respectively. At present containerized cargo accounts for nearly 50% of general cargo flow in the port.

Figure 4

Forecast of Containerized Cargo
Flow Boston Seaport



It is evident that the M.P.A. has been able to slow down the decrease in general cargo flow through the port by an aggressive development of container terminal facilities. It is hoped that this trend continues. The present over-capacity of container fleets and terminals serving the U.S. Atlantic Seaborad introduces competitive factors which could serve in favor or disfavor of expansion of Boston's particip-ation in containerized cargo movements.

II A 3.) Petroleum Activity Forecasts

Petroleum activity in the Boston Seaport consists primarily of residual fuel (heating oil) import and domestic oil product receipts. Total petroleum activity in 1971 consisted of:

Residual Fuel Oil Imports	4,969,202 ST
Domestic Oil Product Receipts	14,302,915 ST
Domestic Intraport Petroleum	1,786,227 ST
Coastwise Domestic Shipment	1,728,574 ST
Total Petroleum Activity	22,786,968 ST

Petroleum activity in the port has in recent years grown at an average rate of about 1.4% per year. Regional industrial development and projected population growth are expected to result in a faster acceleration of consumption rate in the area around Boston, then the rest of the region.

The petroleum activity forecasts were developed on the basis of three premises.

1. Boston develops a limited deep water terminal which will go into operation by 1976 and no large deep water terminal is established on the northeast Atlantic Seaboard by then.
2. Boston does not develop any deep water terminal, but other ports such as Portland, New Bedford, etc. establish deep water facilities with or

without pipeline connection to the Greater Boston area.

3. Neither Boston nor any other New England port develops a deep water port, but a deep water port is established in the Delaware Bay region.
4. No deep water port is established anywhere on the East Coast before 1980.

There are obviously other alternatives, many of which depend on the outcome of:

1. The oil import quota decisions currently under reevaluation by the administration.
2. The rate of extraction of Alaskan North Slope reserves.
3. Development of a Petrochemical industry in the region with special import quota allocations.
4. Extension of the Colonial Pipeline, Pan Canadian Pipeline, of construction of a Chicago to New England Pipeline.
5. Refinery developments
6. Decisions on import of petroleum products from offshore refineries.

The number of considerations is, as a result, very large. Most of these are subject to a multitude of uncertainties. For example, if import quotas are eliminated or relaxed, New England may in addition to heating oil, import a large proportion of oil products from abroad, or import crude oil for local refining. Such long distance hauls would make deep water receipt facilities even more imperative as the economy of tanker size is even more pronounced over long hauling distances.

The forecasts of petroleum activity in the port are based on satisfying a distribution network of approximately 100 miles in radius, if and when deep water facilities are available in Boston. It will be noted that if no such terminal is

established, development of such terminals (by 1976) at other New England ports can be expected to result in a reduction of petroleum activity in Boston to a level of about 14.5 million ST by 1980, consisting primarily of heating oil receipts. A projection of petroleum and petroleum product landings at Boston are presented in Figure 5.

II A 4.) Other Forecasts

Forecasts of cargo flow by commodities is beyond the requirements of this report. Past commodity flow, origin and destination is presented in the Appendices. Cargoes such as automobiles may become important components. Again, this depends largely on conditions and facilities provided though recent dollar devaluations may have a major impact on automobile imports. Special car ferries or Roll-on/Roll-off ships may also provide additional general cargo flow if the port is equipped to handle them effectively. As shown in Table 1 the average reduction in the number of ship arrivals per year was about 70 vessels. The average arrivals consisted in 1972 of 41% tankers, 14.5% bulk carriers, 31% general cargo ships, 11% container ships and 2.4% other. The current trend may be materially affected by the development of:

1. A deep water tanker terminal.
2. Effectively consolidated port operations.
3. More intensive use of container terminals.

A major factor will be the participation of the port in the growing minicargo, minicontainer and small Ro-ro feeder vessel trade.

Considering the reduction in average port time, as well as the peaking of port calls during the average week, we find that the average number of dry general cargo ships and container ships simultaneously in port are expected to be as shown in Table 2.

Figure

Forecast Projected

Petroleum Landed in Boston Seaport

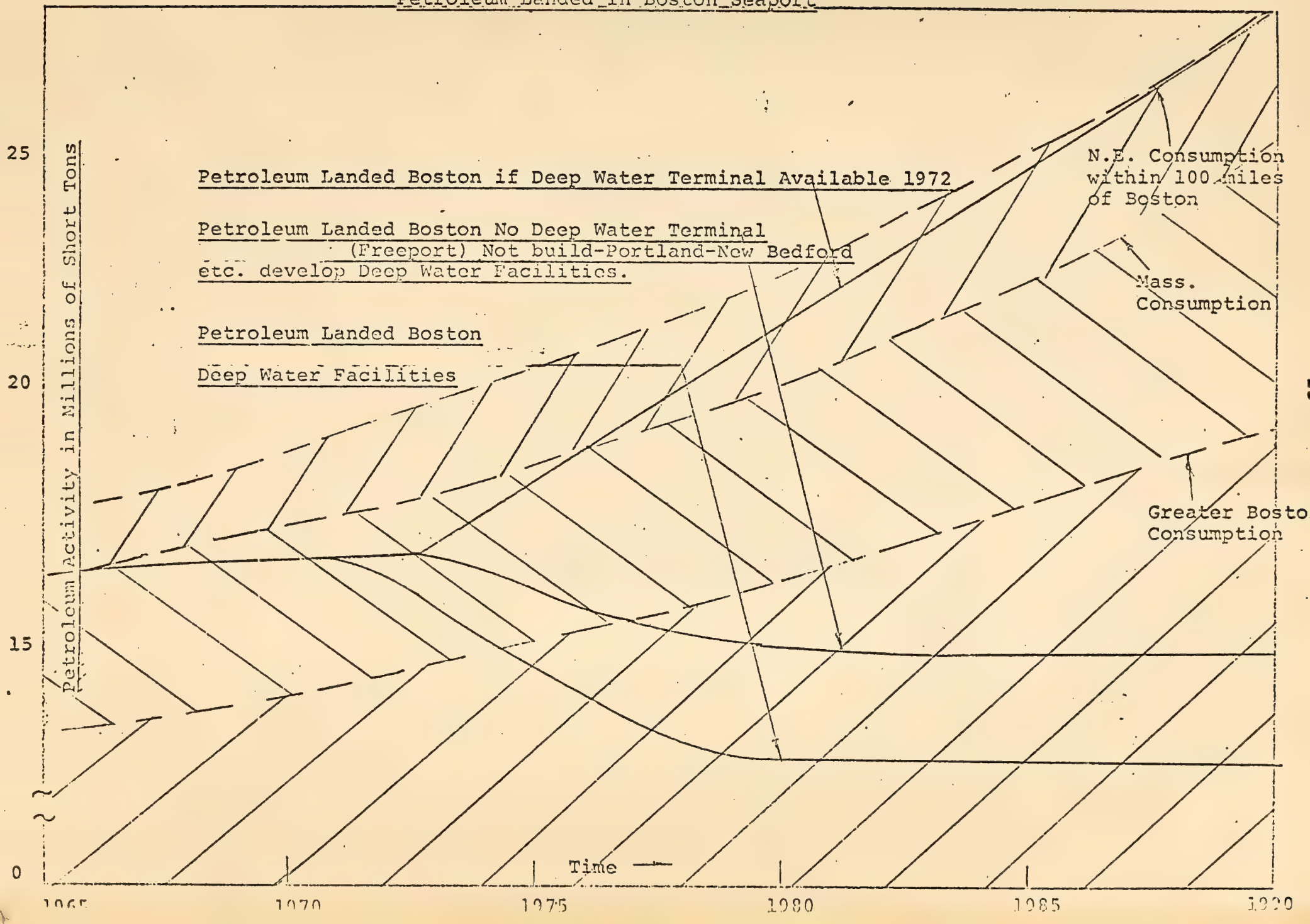


TABLE 1

Year	Average Number of Ship Arrivals per Year
1956	2380
1957	2373
1958	2367
1959	2466
1960	2347
1961	2305
1962	2256
1963	2155
1964	2071
1965	1986
1966	1972
1967	1886
1968	1699
1969	1710
1970	1775
1971	1525
1972	1549

The figures include consideration of increased ship size, cargo volume handled in Boston per unit ship call, and effect of handling. They similarly assume no expansion of facilities.

TABLE 2

AVERAGE NUMBER OF SHIPS EXPECTED IN PORT

Year	Average No. of General Cargo Ships	Max. No. of General Cargo Ships 95% Confidence	*Average No. Container Ships	*Max. No. of Container Ships 95% Confidence
1975	2.0	6.0	1.0	2.0
1980	1.8	5.0	1.4	2.7
1990	1.6	4.0	2.0	3.6

*Including Castle Island Terminal.

II A 5.) Significance of Trends on Forecasts

Port activity and requirements are largely affected by trends in regional economics, regional populations growth and resulting consumption, technology, and labor relations. These major trend factors and their effects on our forecasts a are discussed in this section.

5a) Shipping Technology

Recent years have witnessed a major revolution in shipping technology, which for convenience of our discussion will be divided into:

1. Ship Size and Speed
   a. General Cargo Ships
   b. Liquid and Dry Bulk Carriers
   c. Container Ships
   d. Coastal Ships and Barges
2. Cargo Handling and Stowage
3. Terminal Developments
4. Shipping Labor
5. Future Ship Forms and Types

The trend of ship size is indicated in Figures 6 - 10.

General Cargo Ships are on the decline on the major trade routes and are increasingly replaced by specialized or unitized dry cargo carriers. The percentage of general dry cargo carried by general cargo ships on the North Atlantic, a route of prime interest to the activity and requirements of the Port of Boston, has declined from 98% in 1965 and 70% in 1968 to less than 48% in 1971. Projections indicate that about 70% of all dry general cargo by volume and 64% by weight will be carried by specialized or unitized ships by 1975. As a result most high valued packaged cargo, automobiles, as well as many staples will no longer be available to dry cargo

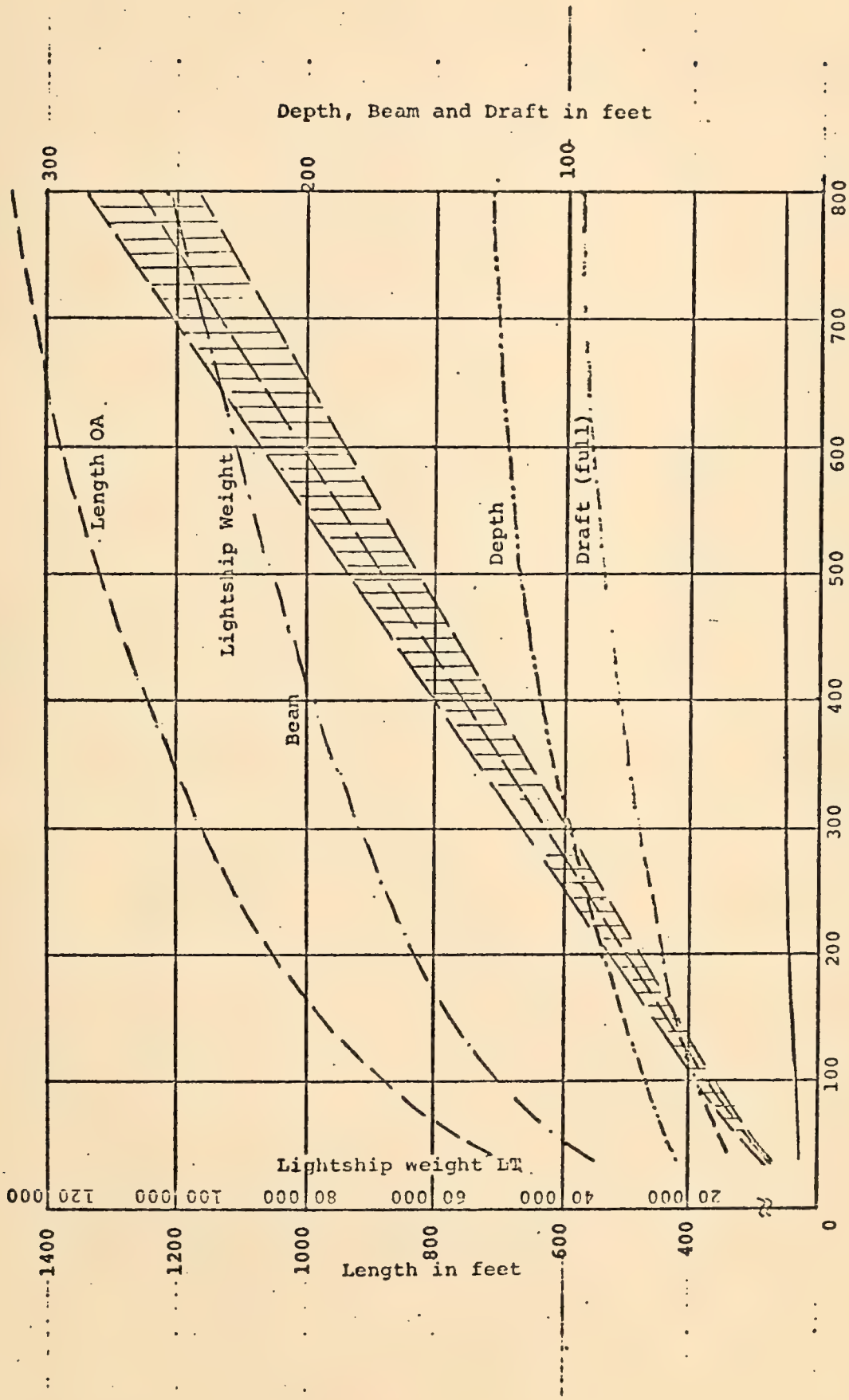


Figure 6 Tanker Dimensions

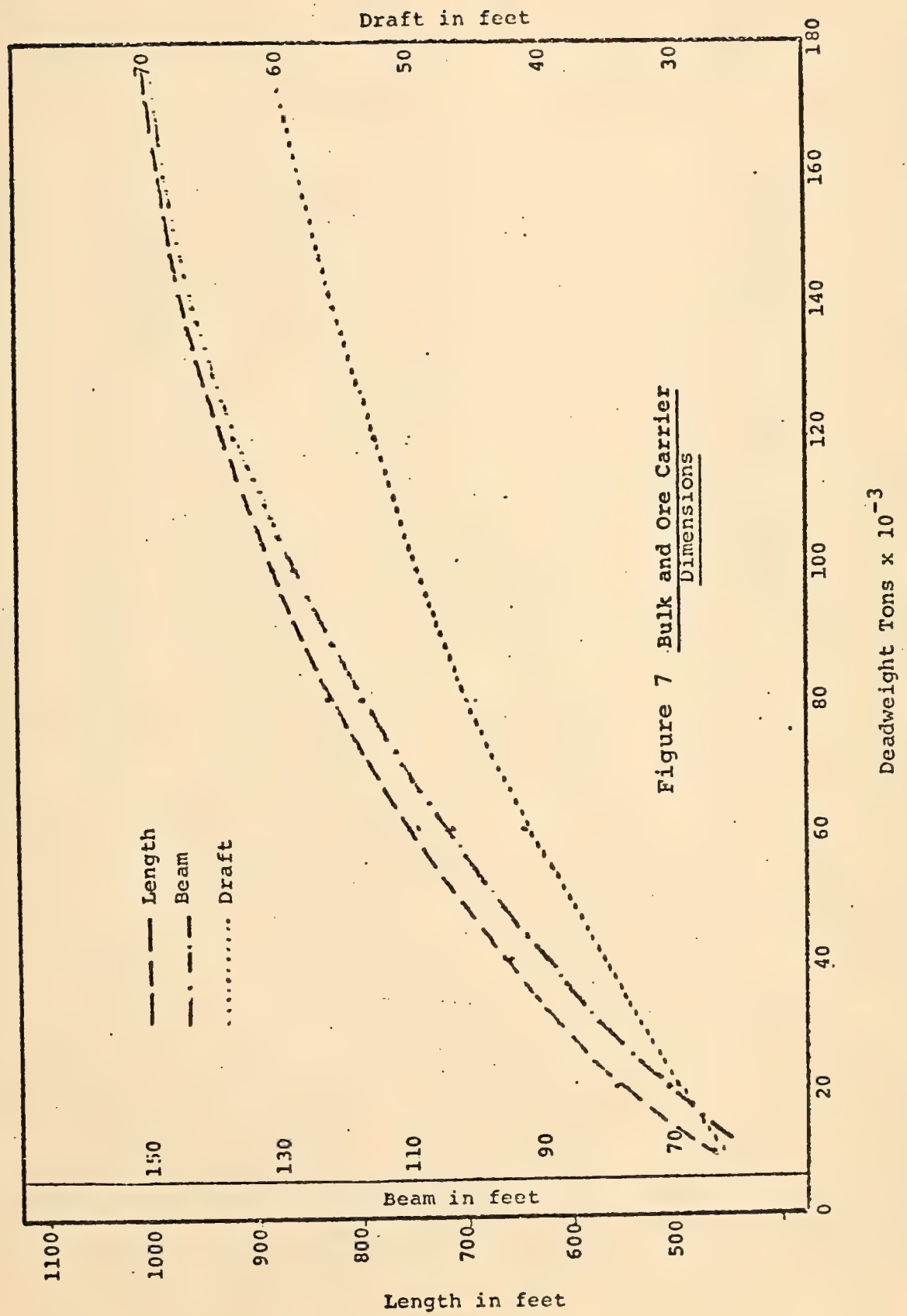


Figure 7 Bulk and Ore Carrier
Dimensions

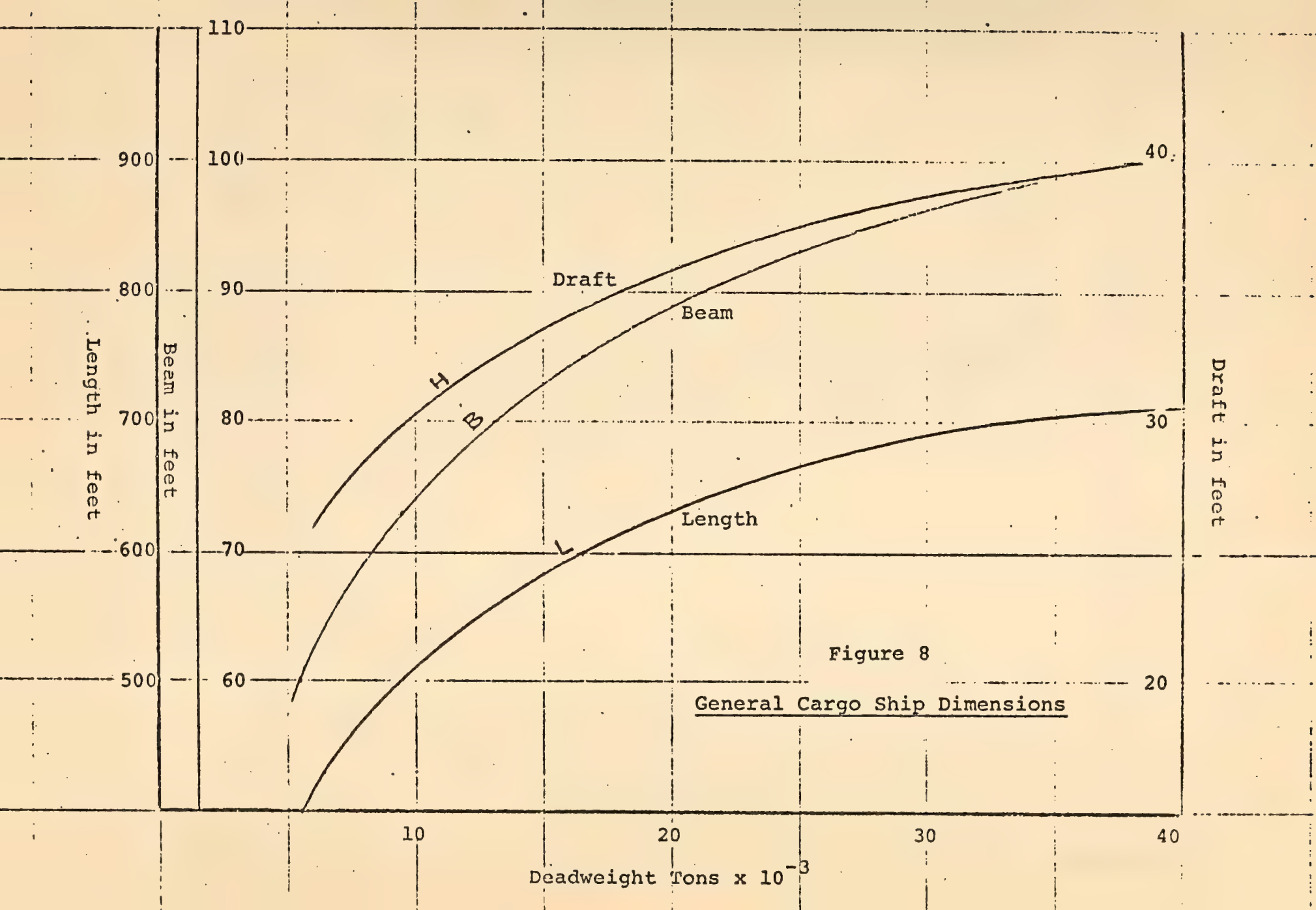


Figure 8

General Cargo Ship Dimensions

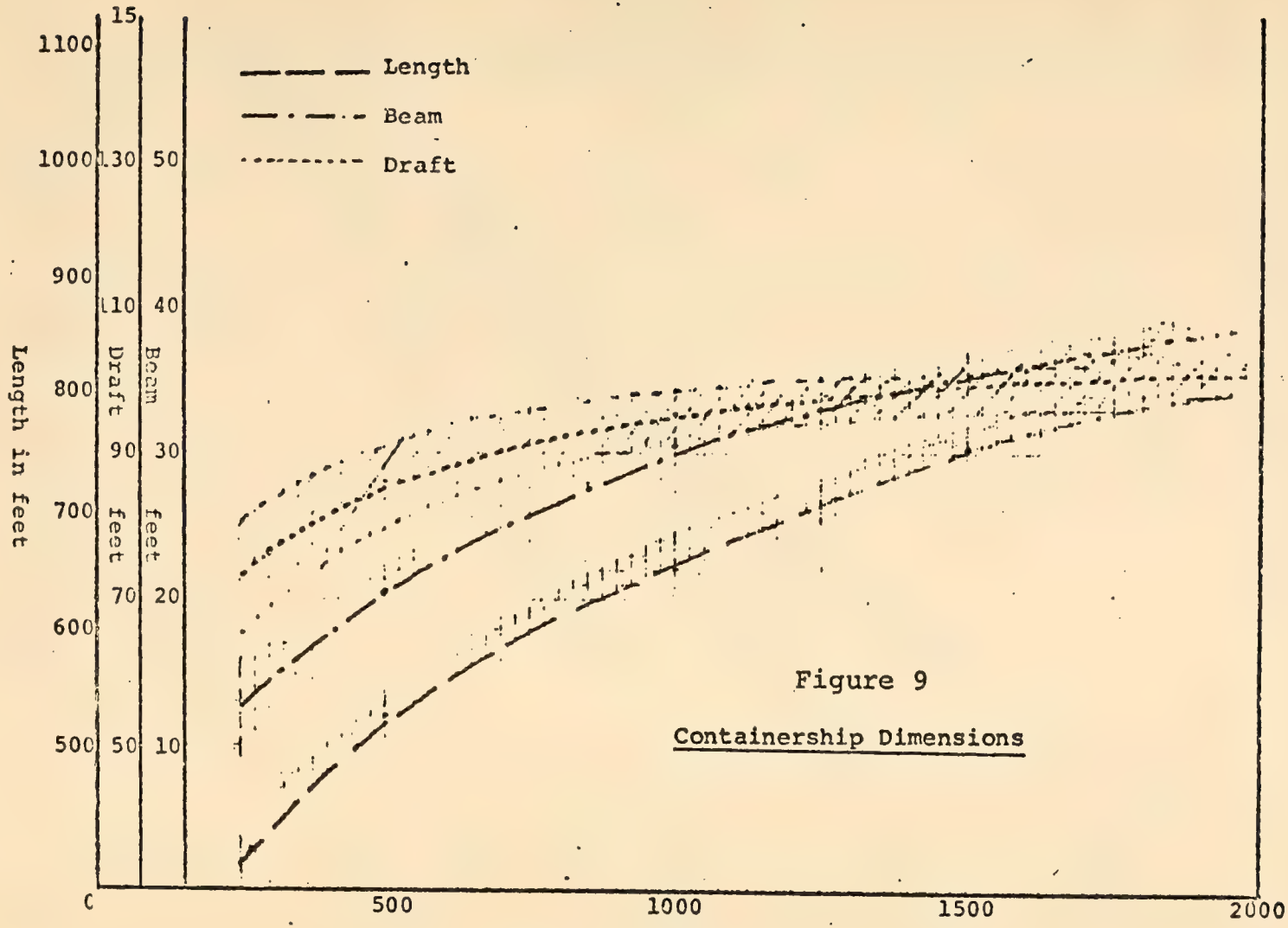
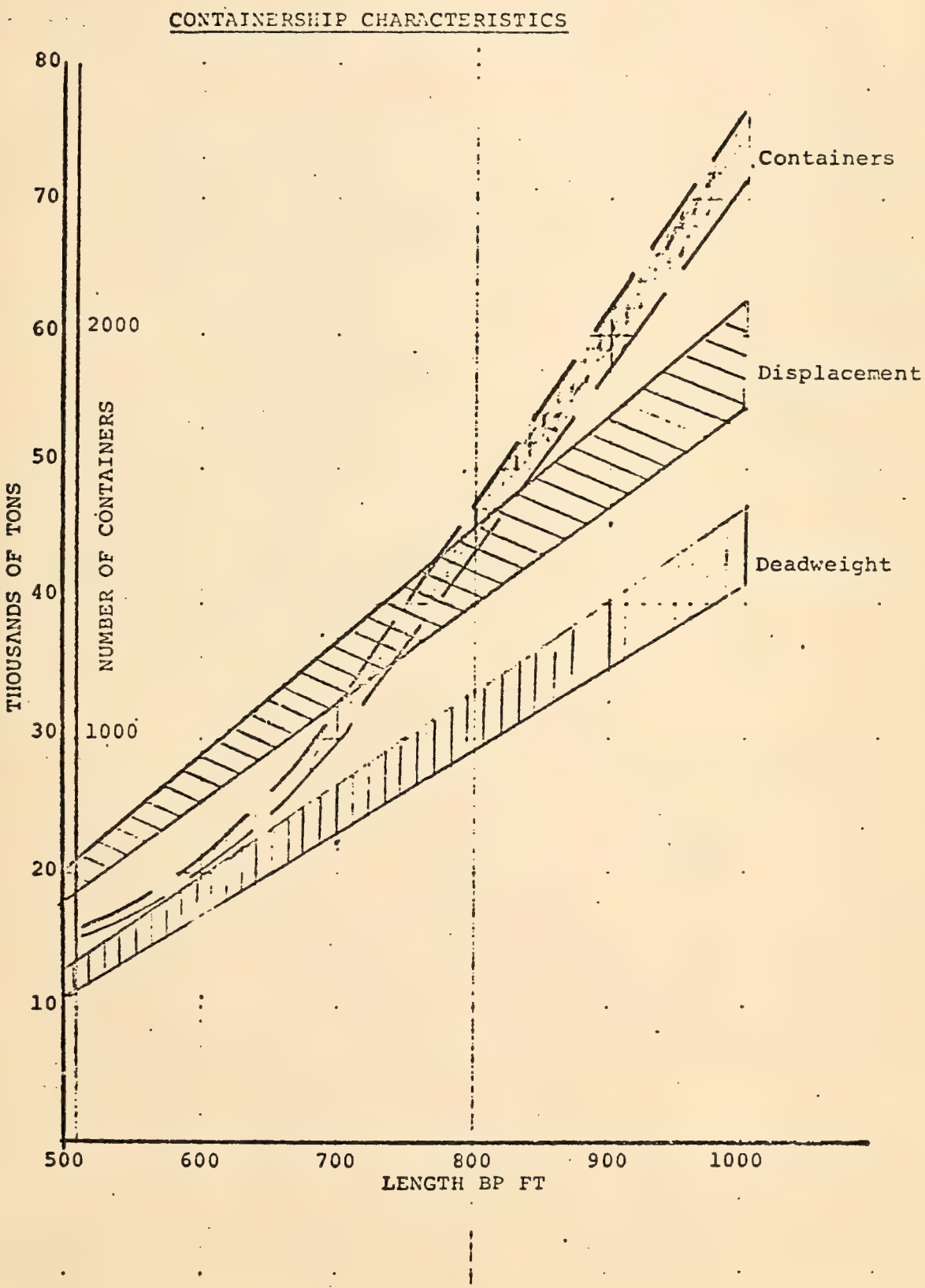


Figure 9

Containership Dimensions

Figure 10


CONTAINERSHIP CHARACTERISTICS
80
70
60
50
40
30
20
10
THOUSANDS OF TONS
2000
1000
NUMBER OF CONTAINERS
Containers
Displacement
Deadweight
500
600
700
800
900
1000
LENGTH BP FT

ships trading on the North Atlantic at that time. Similar trends are expected on other trade routes though at a smaller rate although in the Pacific (Far East) route less than 60% of general cargo is not containerized. Dry general cargo ships have increased in size and new ships now average displacements of 22,000 long tons with a length of over 600', a beam in excess of 80' and a loaded draught of more than 32'.

These ships average a loaded speed of 18-21 knots and are generally equipped with large 24' x 40' hatches and 2 sets of cargo gears per hatch. Many of these ships have heavy lift equipment. It is expected that general cargo ships will continue to grow in size to assure economy of operations and attain average lengths of 700' and draughts of 34' by 1975-1980. These ships, where employed on regular schedules, normally carry a large number of comparatively small parcels of cargo. General cargo ships operating as tramps or under charter on the other hand, generally carry large unit loads.

Liquid and Dry Bulk Carriers

Tankers and Dry Bulk Carriers have probably undergone the largest revolution in ship design. By 1975 well over 60% of all tankers are expected to be larger than 60,000 DWT and account for well over 86% of the total tanker carrying capacity. By 1980 it is projected that 70% will be over 60,000 DWT (60% over 80,000 DWT and 50% over 100,000 DWT) with well over 92% of the carrying capacity, while by 1990 well over 80% of the tankers will be in excess of 60,000 SWT with nearly 25% of all tankers in excess of 200,000 DWT.

More than 60% of all tankers currently under construction or on order, world-wise, are larger than 100,000 ton including over 250 ships of 200,000 DWT or larger. Tankers of 480,000 DWT have been constructed, and tankers

1,000,000 DWT are under consideration. The most versatile and popular crude tanker appears to become the 250-350,000 DWT size as a result of transportation, terminal, facility and storage cost systems trade-off.

It is rather obvious that although product tankers lag behind crude oil tankers in size, the former are also rapidly increasing in size. Only a few product tankers, which are of prime interest to the seaport of Boston, will be available in sizes of 15-35,000 DWT after 1980. At that time all converted or jumboized World War II and early 1950-1955 tankers will be scrapped, and it is doubtful that these tankers will be replaced by uneconomic small tankers considering the small comparative cost of terminals versus tankers.

As a result it is inconceivable that seaports unable to accommodate tankers of 50,000 DWT plus size will be able to maintain positions as major petroleum ports.

Dry bulk carriers have also rapidly increased in size. In addition these ships are now generally more specialized and carry a very limited range of cargoes with fairly uniform handling requirements and densities for greater efficiency. Few ocean-going bulk carriers are constructed in sizes of less than 80,000 DWT with several 250,000 DWT constructed. Even larger bulkers are under construction or on order. By 1980 the average size of a bulker is expected to be well over 60,000 DWT, and by 1990 85,000 DWT. The resulting draught requirements are 43' and 55' respectively, greatly exceeding the capability of the available bulk off-loading facility in the Boston seaport.

Containerships

The most revolutionary developments have taken place in unitized shipping. Pallet and Roll-on/Roll-off

ships have gained rapid popularity, but the greatest advances have been introduced by cellular container ships.

Freight costs (by volume) are reduced by as much as 50% using this type of transportation, which furthermore provides:

1. Faster delivery
2. Potential of through billing and documentation and resulting reduction in administrative costs.
3. Reduced damage, pilferage and resulting insurance costs.
4. Better cargo control

Container ships are now planned in sizes of 30-50,000 DWT and with speeds of 25-30 knots. These ships will carry 1500-2800 standard 20' containers. They are generally designed for one day port turnaround necessary to justify the large ship and container capital investment as well as operating costs of these vessels. In these capital intensive container ship systems, total investment is often 3 times that of an ordinary general cargo ship with the same DWT and speed. As a result, perfectly timed operations must be assured. Average container ship will exceed 750' in length by 1975 and draw about 32' of water in loaded conditions.

Major criteria of success in container terminal operation are accessibility to rapid inter-urban transportation networks, availability to sufficient marshalling, good truck or flat car access and regress from shipside, sufficient and effective off-loading facilities, efficient inter-terminal transport, container consolidation facilities, and efficient, productive, reliable labor.

Changes in physical configurations, working approach, labor mentality, and rate structure will improve the attractiveness of the port to future container shipping.

Coastal Ships and Barges

Coastal shipping is increasingly being performed by mammoth barges of up to 40,000 DWT. Barges in excess of 60,000 DWT are contemplated for 1975, while by 1980 we expect to operate 100,000 DWT barges in coastwise trade. A 50,000 DWT barge will have a draught of 29' to 40' depending on design while a 100,000 ton barge will draw a minimum of 28' in loaded conditions. This is appreciably less than the draught of an equal capacity tanker. These barges will carry all kinds of dry and liquid bulk cargo. Coastwise transportation of general cargo by barge is less attractive. They are increasingly being used for the transportation of assembled machinery and other outsize goods or for a variety of specialized services. The unavailability of assembly labor or cost of erection on site makes shipping of modules highly attractive. As a result major machinery and manufacturing plants in the region may find it increasingly advantageous to ship by barge.

Cargo Handling and Stowage

A decreasing number of new ships are equipped with conventional derricks and booms. At the same time the demand for equipping permanent piers of regular scheduled cargo liners and container ships with pier mounted cranes is increasing. It is obviously more advantageous to have cranes serve a multitude of ships instead of requiring each vessel to carry its own cargo handling gear which is then used a few days a month at most. European and Japanese ports have historically been equipped with shorebase equipment. As Boston seaport's foreign trade consists of over 85% of import or export to these countries, it becomes attractive for the port to complement these services by the provision of a limited

number of shorebased cranes. Such a move would not only attract additional ships which are not equipped with their own or efficent gear, but also assure faster turnaround through the use of the more efficient shore-based cranes, or their use in conjunction with the use of ships gear.

In addition, ports usually require equipment for more effective handling of steel and lumber consisting of large straddle carriers, and extensive ramps and conveyors.

Cargo handling technology tends towards more continuous flow between ship and pier, as well as between pier and inland. A minimum of pierside residence is a prerequisite for fast handling rates, and this in turn requires effective pierside equipment.

Our commodity flow forecast assumes that the expected flow is supported by such modern innovations, and our optimistic projections assume adoption of the most sophisticated handling methods available.

Terminal Developments

Modern general cargo and container ship terminals consist generally of marginal piers with large marshalling areas, easy access, and modern handling equipment. Finger piers require not only expensive and time consuming maneouvering by the ships and landbased vehicles, but are also inflexible with respect to ship length and beam.

Apron width must be at least 30' and in most modern terminals warehouses and other structures are recessed to about 100' to permit clear unobstructed movement of modern equipment and inland modal transport.

Terminal movement must be designed as unidirectional without crossflow and by clearly separating continuous and intermittant flows.

Effective circulation paths must be incorporated and sufficient load capacity (1000 lbs./ft.^{2}) designed into the facility.

Future seaport terminals will include vertical automatic container and pallet stacking and selective retrieving systems. Cargo marking, weighing, measurement, and identification can be automatically controlled by computers which also define unloading and loading sequences and assignments. They furthermore supply the signals for cargo flow, and truck or car movements. These systems, currently available, incorporate documentation and billing control, and will compute ship departure conditions using all relevant ships data. Such automated terminal control systems are dependent on effectively integrated automatable shorebase handling equipment such as extensive conveyors, elevators, turn tables and other systems.

Shipping Labor

Labor applications will, in the future, be largely effected by technological and social developments. In particular, shipboard and shorebased automation and mechanization will play a major role. While not necessarily reducing employment levels, the trend will definitely change the job requirements. Heavy manual work will only be required in such activities as hook-in and release. On the other hand, large numbers of semi-skilled operator-type personnel will be needed.

Similarly, checkers and workers will, in the future, probably be replaced by operators of automatic logging and control equipment. These developments will be in effect in the modern port by 1975-1980.

Future Shipforms and Types

In addition to the developments in conventional displacement ship design, a number of new ship types and forms are under consideration. The most important are:

1. Catamaran types
2. Semi-submerged Catamarans
3. Submarine Cargo Ship
4. Stable Platform Carriers
5. Ground Effect Vessels
6. Hydrofoil Vessels

All of these types are feasible, developed, and are fast, capital intensive carriers. Ocean going Ground Effect Vessels and Hydrofoil craft, while available, are expected to only provide economic ocean shipping for high valued goods by 1980 if they are able to beat large jet cargo air plane competition. These vessels will extremely short turnaround and efficient cargo handling. Catamaran type vessels have large beams and are harder to maneouver. Therefore, terminals must be easily accessible.

Submarine Cargo ships may only be economic for liquid bulk cargoes on certain trade routes by 1980. They would require very extensive waterdepth alongside (50-60').

(II A) 5b) Regional Petroleum Prospects

Over 40% of all the petroleum products used in the New England Region are consumed within 50 miles of Boston and therefore distributed directly from oil terminals in the Boston seaport. The following table gives the distribution of projected petroleum consumption in Millions of Short Tons.

	1968		1975		1980		1990	
	%	MST	%	MST	%	MST	%	MST
New Hampshire	5.7	1.79	5.6	1.92	5.4	2.05	5.1	2.3
Maine	9.6	2.94	9.5	3.26	9.3	3.46	9.0	4.06
Massachusetts	52.2	16.52	53.1	18.2	53.9	20.4	55.2	25.0
Greater Boston	41.1	13.21	42.1	14.4	42.4	15.8	42.7	19.2
Vermont	3.6	1.13	3.2	1.23	3.0	1.25	2.8	1.27
Rhode Island	6.9	2.17	6.7	2.28	6.6	2.46	6.4	2.9
Connecticut	22.0	6.95	21.8	7.42	21.7	8.07	21.4	9.5

As much as 40% of the above projected consumption may be imported by 1975, while by 1980 nearly 65% are expected to be imported.

5c) Balance of Inbound and Outbound Cargo

As noted in earlier sections, the port currently suffers under complete imbalance of inbound and outbound cargo. Foreign imports are 12 times as large as exports to foreign destination. Coastwise receipts are nearly 8 times as large as coastwise shipments. Foreign export cargo at this time consists primarily of scrap iron and other very low value bulk cargoes. These are usually carried by tramps which do not contribute to the viability and growth of the port as much as a regular scheduled liner vessel portcall. Furthermore, this type of outbound cargo contributes little to the local economy or employment.

To assure high frequency of call by liner scheduled vessels, as well as calls on Boston as a last port of call before overseas passage by such vessels, more export cargo must be generated. The dilema is obviously that while the New England region is a great consumer of high value and volume imports, particularly staples, very little outbound volume cargo is generated. As a result, such cargo must be attracted from distant places, such as the Midwest and Canada.

Container cargo operations, by their nature, must be provided with fairly balanced trade to be attractive. As a result it is forecasted that if Boston is to be successful in implementing a meaningful container ship traffic, then in addition to the improvements in labor and rate conditions, reasonable export cargo availability must be assured, which makes container ship calls at Boston at least as attractive, both in turnaround time and cost wise, as operations through other East Coast ports. Additional export cargo of several hundred thousand tons per year must be generated by 1975 to assure continued viability of the aggressive start up of the

container terminal. This should consist primarily of high value cargo.

Liquid and dry bulk cargo, which accounts for about 88% of all cargo handled in the port, will continue to consist only of inbound cargo. This condition will only change if and when refineries, petrochemical plants, and other bulk product generators are established in the region.

5d) Labor Relations

Port labor relations have fluctuated over many years. Although only about 650 stevedores are available at the port and less than 300 are employed on an average workday, this force has historically yielded a tremendous economic and political power. Work rules in the port have generally been more restrictive than in any other U.S. port, and resulted, for example, in the abandonment of the completed container facility in South Boston after presumable ironclad agreements for its operation had been obtained.

Labor productivity is among the lowest anywhere and proliferation of rules, job and skill definition make it extremely difficult to operate in the port with any degree of flexibility.

Cargo security has always been lax in the port, and cargo accessability is assumed an inherent right by some of the workforce. This attitude had become a major factor in acceptance and handling of containerized cargo. The unions are basically closed, and control remote piers from a central hiring hall, which results in major time loss before reporting to work or at shift end.

The relations between labor and the M.P.A., on one hand, and the Boston Shipping Association, individual operators, or owners, on the other hand, has always been difficult. The current low level of activity has resulted

in a temporary easing of relationships but care will have to be taken to assure effective labor-management relations if and when the port begins a revival of activity.

(II) B.) Inventory of Facilities

Introduction

This section is concerned with the current assets, facilities and jurisdictional boundaries of the Boston seaport under the Massachusetts Port Authority.

The significance of the seaport to the economy and well-being of the City of Boston, its metropolitan area, and the New England region has been questioned in recent years. This is largely a result of the reduction in seaport activities and the multitude of problems in its operation and use. Many large manufacturer-shippers and importer-receivers have moved their activities from the area, which is now primarily occupied in the production of high value, low volume products. This has reduced dependence of the regional economy on the port. In addition, other eastern U.S. ports have been able to attract a large proportion of New England regional cargo flow by providing, often, more economic, frequent, or speedier service. As a result, prospective future shipping demand must be examined as a function of, and its effects on, the regional and urban economics, and social social development.

Boston has important goals and objectives for its urban development. Some of these may be facilitated by a rational use of seaport property and facilities under the jurisdiction of the Massachusetts Port Authority. Originally the commerce of the port was, to a large extent, handled by the piers in the city proper, such as along Atlantic Avenue. These, if active, are now normally only used for local traffic. Plans are underway for their use for redevelopment purposes. In addition, many South Boston, East Boston and Charlestown

piers are grossly underutilized and provide opportunities for redevelopment. The 158,646 lineal feet (30 miles) of berthing waterfront space and hinterland available in the port may offer not only opportunities for use for unique urban redevelopment within the inner city, but also for the redevelopment of new extensive waterfront industries designed to assure an effectively integrated development community.

The basic characteristics and facility requirements of a seaport consists of:

1. Navigational aids
2. Piers and jetties
3. Terminals
4. Pier and terminal cargo handling and transfer equipment
5. Storage areas, warehouses, and special storage facilities
6. Ship mooring and maneouvering assist facilities
7. Security fence
8. Road, rail and barge access
9. Gates and marshalling facilities
10. Circulation roads and passages

They are often described by such factors as:

Piers

Number
Area (Total)
Length
Covered Area
Apron Width
Surface
Bulkhead
Load Carrying Capability
Access (Rail-Road-Barge, etc.)
Security Fence

Water Depth Adjacent Piers
Ship Mooring Facilities
Equipment Cranes
Equipment Mobile
Equipment Transfer
Storage Open Area
Storage Covered Area
Circulation and Access Roads and Passages
Labor categories, Members, Rules
Organization, Control and Management, etc.

Other facilities are usually described by similar factors. These, in turn, serve to indicate the capacity and capability of the component parts of a seaport. In our review, only basic factors such as number, area, length, water depth, etc. will be used.

The Massachusetts Port Authority

The Massachusetts Port Authority is an agency of the Commonwealth of Massachusetts, created by Chapter 465 of the Acts of 1956 of the Massachusetts General Court. The Massachusetts Port Authority is a self-sustaining organization, having administrative charge over the high level Mystic River Toll Bridge, Logan International Airport, Hanscome Airport in Bedford, and the public marine terminal facilities in the port of Boston.

Revitalization of the port of Boston is considered by the Authority as its central task. It has underway an extensive program of reconstruction and development involving the airport and the pier facilities of the port as the result of research into the future needs for such facilities.

The Authority is particularly interested in new business and expanding commercial enterprises that can utilize the facilities of the port of Boston, Logan International Airport,

Bedford Airport, and the Mystic River Bridge. Its aim is a healthy and efficient port community, with facilities sufficent to meet shipping demands.

The Massachusetts Port Authority has trade development offices located in New York City, Chicago, Washington, Tokyo, London and Brussels.

Boston offers service by both sea and air to all the principal cities and ports of the world. The port of Boston is served by nearly 70 steamship lines offering frequent sailings to and from most world ports.

The piers are located from five to seven miles from the open ocean on a waterway free of such impediments as drawbridges, except in the case of Chelsea piers to which access is via a drawbridge. Large rail holding yards are located adjacent to all main waterfront and some other piers.

General Port Charactersitics

Boston Harbor Channels, Anchorages, Bridges and Terminals - Boston Harbor is generally defined by the expanse of water contained by a line between the southern point of Deer Island and the northern point of Long Island. It consists of over 30 miles of improved waterfront primarily located in the juncture of the Charles and Mystic Rivers and their joint approaches to the ocean at Massachusetts Bay.

The port of Boston is defined as the expanse of water and waterfront facilities in the inner harbor northwest of Castle Island point comprised between East Boston, Chelsea, and Everett on one side, and South Boston, Boston, and Charlestown on the other side.

The juridical boundaries of the seaport under the authority of the Massachusetts Port Authority is presented in the detailed maps of Appendix A, which indicate the extension of the port toward prime inland

property of potential use or importance to the development and operation of the port.

Channels and Anchorages - The port of Boston is served by three principal entrance channels, namely: Broad Sound, North Channel 1500' wide, 35' deep MLW, 900 feet of which are dredged to 40' depth at MLW; Broad South Channel 1200' wide, 40' deep MLW; and Narrows Channel 100' wide, 27' deep MLW.

The President's Roads leading into the inner harbor are 6,000' long, 2,000' wide, with a minimum depth of 30' MLW. Nantasket Roads 5,000' long and 2,000' wide, with a 30' MLW depth, provide safe anchorage.

The inner harbor extension of the President's Roads, called the Main Ship Channel, is 600-1200' wide and has a depth of 35' which goes beyond the Charlestown Naval Shipyard. Another 600' wide channel, 40' deep, forks in a southerly direction from the main channel. As a result, the main segments of the port are capable of accommodating ships of 20,000-50,000 ton displacement.

Other channels connect the Main Channel to:

Dorchester Bay - Neponset River - 175' wide, 18' deep MLW for three miles, then 100' wide and 12' deep MLW for 1-1/2 miles to Neponset Bridge.

Reserved Channel - 400' wide, 30' deep for 1-1/2 miles.

Fort Point Channel - 175' wide, 1-1/2 miles long, 20' depth.

Weymouth Fore River Channel - 300' wide, 26-1/2' deep, three miles to Fore River Shipyard, with 600' turning basin 30' deep MLW.

Town River - 24' deep, 50' wide, to Junction with Fore River Channel.

Weymouth Back River Channel - 250' wide, 12' deep for 1/2 mile to American Agricultural Chemical Company.

Special facilities available in the port of Boston are provided for:

Liquid Sulpher - 10,000 ton heated tanks.

Coal and dry chemicals - conveyor belt system 1700' long, rate 1000 tons/hour. Material is piled by belt stackers moving on rails.

Cement - off-loading plant 800 tons/hour.

All of these are privately owned by companies such as Eastern Gas and Fuel Associates whose prime facilities are located in the Inner Harbor Mystic Park. Dry dock facilities in the port are provided by:

U. S. Navy Yard - 750' x 114' x 30' MLW.

New South Dock - 1200' x 120' x 40' MLW.

Simpson - 2 graving, 1 floating.

Bethlehem Steel - 2 floating, 1 graving.

General Dynamics - 2 graving docks.

Total berthing space is eight (8) miles at 30' MLW and seven (7) miles at 35' MLW.

A large amount of Federal channel and harbor access improvement work is underway and contemplated. Coastal channel and harbor work projects which commenced in December 1967 included improvements in channel width and depth; Weymouth Fore and Town River ($17.0 million) and Boston Harbor channels ($2.6 million). It should be noted that these expenditures constituted over 7% of all Federal coastal channel and harbor work in the United States underway at that time.

Bridges

Charles River - There are five bridges with draws between the entrance and Charles River Basin. The lower bridge has a clear width of 50 feet in the draw span. The second bridge has a width of 38 feet; the third has a width of 65 feet and the last two have widths of 50 feet. Besides the draw bridges, there is one fixed bridge with vertical clearance of 50 feet above high water. Above the dam there are eleven bridges, all having fixed spans. The lower bridge has an overhead clearance of 29.9 feet; the remaining ones, with the exception of the upper one, have an overhead clearance of 12 feet. The upper bridge has an overhead clearance of 11 feet.

Mystic River - There are six drawbridges over this river between the entrance and Medford Square. The openings of the bridges run from 75 to 42.6 feet.

Chelsea River - There are two drawbridges at present over this stream. One of these bridges is of the bascule type with a draw opening of 96 feet. The Meridian Street bridge has a 175-foot double bascule type opening.

Malden River - There are two bridges over this stream. The lower bridge has a draw opening of 50.3 feet and the upper bridge has an opening of 52 feet.

Fort Point Channel - There are three bridges over this waterway having draw openings ranging from 76 to 50 feet.

Terminals - There are 259 piers or wharves in the port of Boston of which 156 are usable. They provide 158,646 lineal feet or 30 miles of berthing space measured along the sides and ends of piers and along bulkheads or shore wharves. Many of them have railroad connections. The depths of water available alongside these terminals range up to a maximum of 40 feet at MLW. Practically all of the terminals fronting on the main ship channel are in close proximity to storage warehouses, including cold and dry, which greatly facilitates the transfer of cargo between vessels and warehouses.

The piers of Boston Harbor fall naturally into three groups; those served by the Penn Central Railroad in South Boston; the Boston and Maine Railroad's, situated at the upper end of the inner harbor at Charlestown; and those of the Penn Central Railroad (Boston and Albany District) across the harbor at East Boston.

All of the principal piers have track connections and facilities for direct transfer of cargo between cars and vessels and motor truck service to all parts of New England, the Midwest, and Canada.

Port of Boston Facilities

This section describes the various facilities presently owned/and operated by the Massachusetts Port Authority.

Investment in seaport facilities is steadily increasing from $4,998 M in 1966 to about $7.20 M in 1971. Port facility utilization, though, is steadily declining. While the total volume of general and containerized cargo handled is about level, port revenues from port operations (not leases, etc.) are only increasing very gradually. The tolls, fees and sales of

of services for 1968 were $538,000 while rentals accounted for $1,704,000. This ratio has remained nearly constant. Port revenues have increased largely as a result of greater increase per unit from container operations. On the other hand, investment into container facilities is proportionately greater. Major technological changes in ocean transportation of general, as well as bulk cargoes, have made some facility renewal programs in the harbor obsolete before completion. While most of the M.P.A. facilities are in good conditions and well maintained, many suffer under:

1. Lack of proper security.
2. Lack of sufficient marshalling area for trucks.
3. Inadequate apron width.
4. Inadequate road access.
5. Ineffective or nonexisting separation of cargo vehicular flow.
6. Dispersion of facilities.
7. Inadequate cargo handling and transfer equipment.

The major characteristics of the seaport facilities are summarized in Table I and Table II.

East Boston Terminals

Operated by:	Massachusetts Port Authority
Total Area:	35 acres
Covered Storage:	Pier 1 - 206,000 s.f.
7 - General Cargo Berths:	Pier (6 @ 600 ft., 1 @ 400 ft.)
Truck Loading Positions:	8 @ Pier 1
Railroad Service by:	Penn Central
Construction:	Pier 1 - Concrete deck on steel pipe piles, steel frame bldg. Piers 3 & 4 - Timer deck on timber piles.

TABLE I

PORT PROPERTIES

ACREAGE

	Acres
Commonwealth Flates	22
RR Yards	40
Castle Island	101
Commonwealth Pier 5	11
Hoosac	8
Army Base	38
Mystic	12
East Boston	35
	267 acres

In this area the piers are operated by the Penn Central System.

Pier 1, the newest in the port of Boston was officially opened in December, 1954. It is 605 feet long and 390 feet wide with a working apron of 25 feet on the east and west berths, and 20 feet on the end berth. The transit shed on the pier has approximately 200,000 square feet of working area, devoid of columns, with two depressed center tracks, ramps and loading platforms to accommodate Flexi-Van and truck traffic. A track located on each side apron permits handling of freight between open-top equipment and ocean vessels through use of ships' tackel. This pier is also equipped with a piping system that allows the simultaneous loading of six tank cars. A new roadway constructed to Lewis Street provides better highway access to this and other Penn Central operated piers.

Piers 3 and 4 are not operated, have been leveled to deck.

Pier 5, an open pier with two tracks to accommodate sixteen cars at one time, can serve any heavy lift cargo to or from ship or cars.

The Penn Central System serves this area exclusively and has main line connection via its Grand Junction Branch, on which is located a 300-car capacity holding yard.

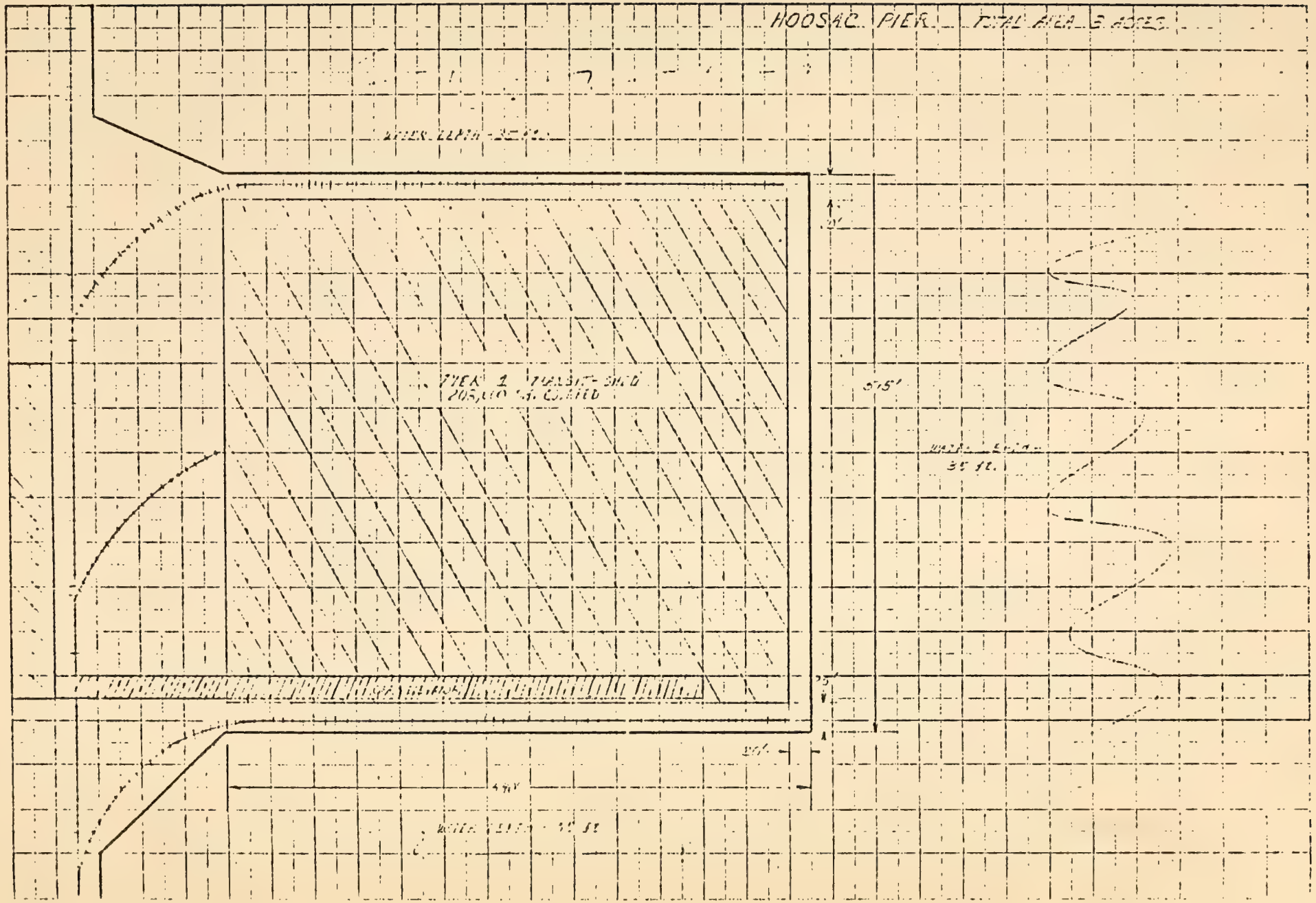
CHARLESTOWN TERMINALS

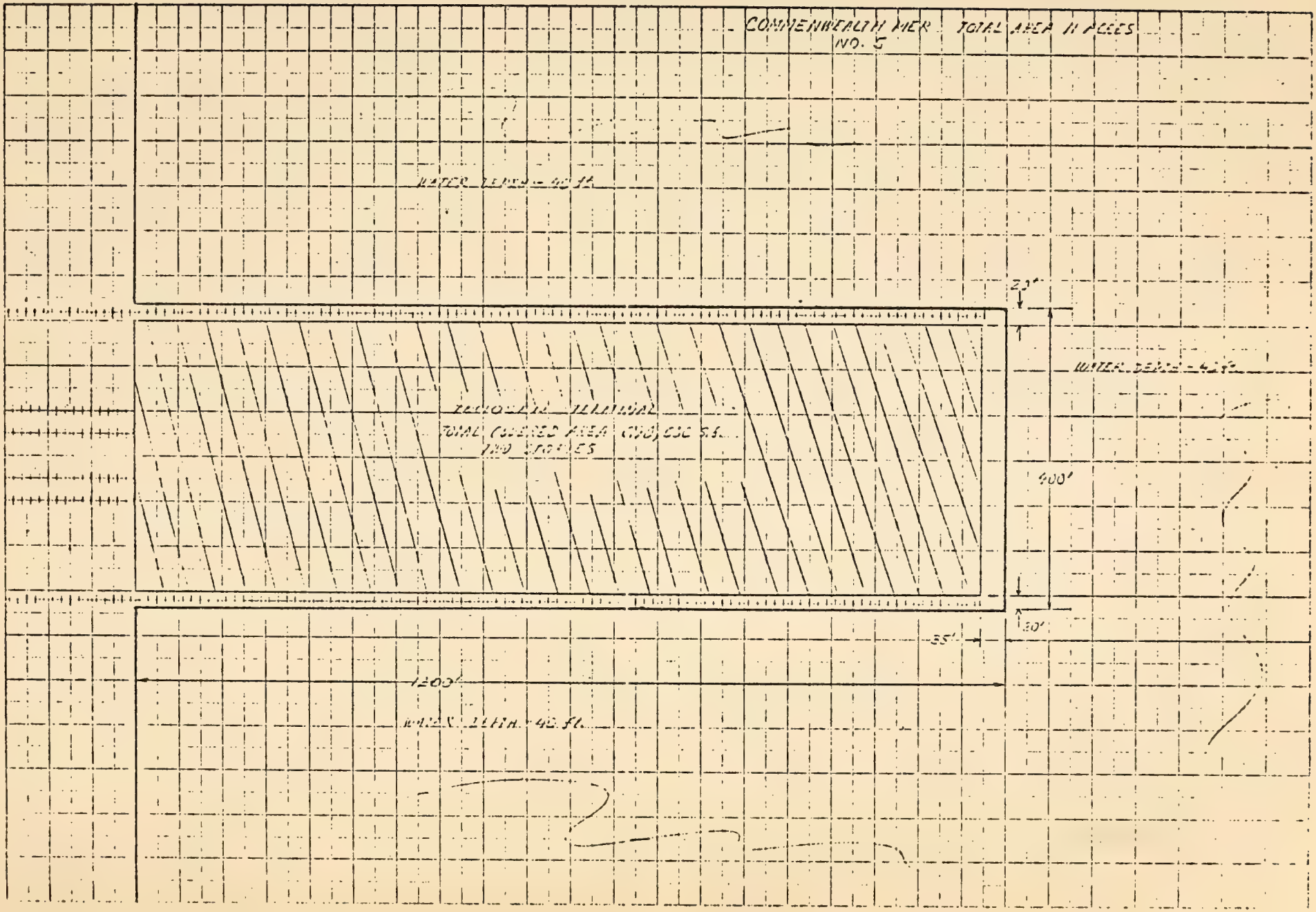
Mystic Terminal

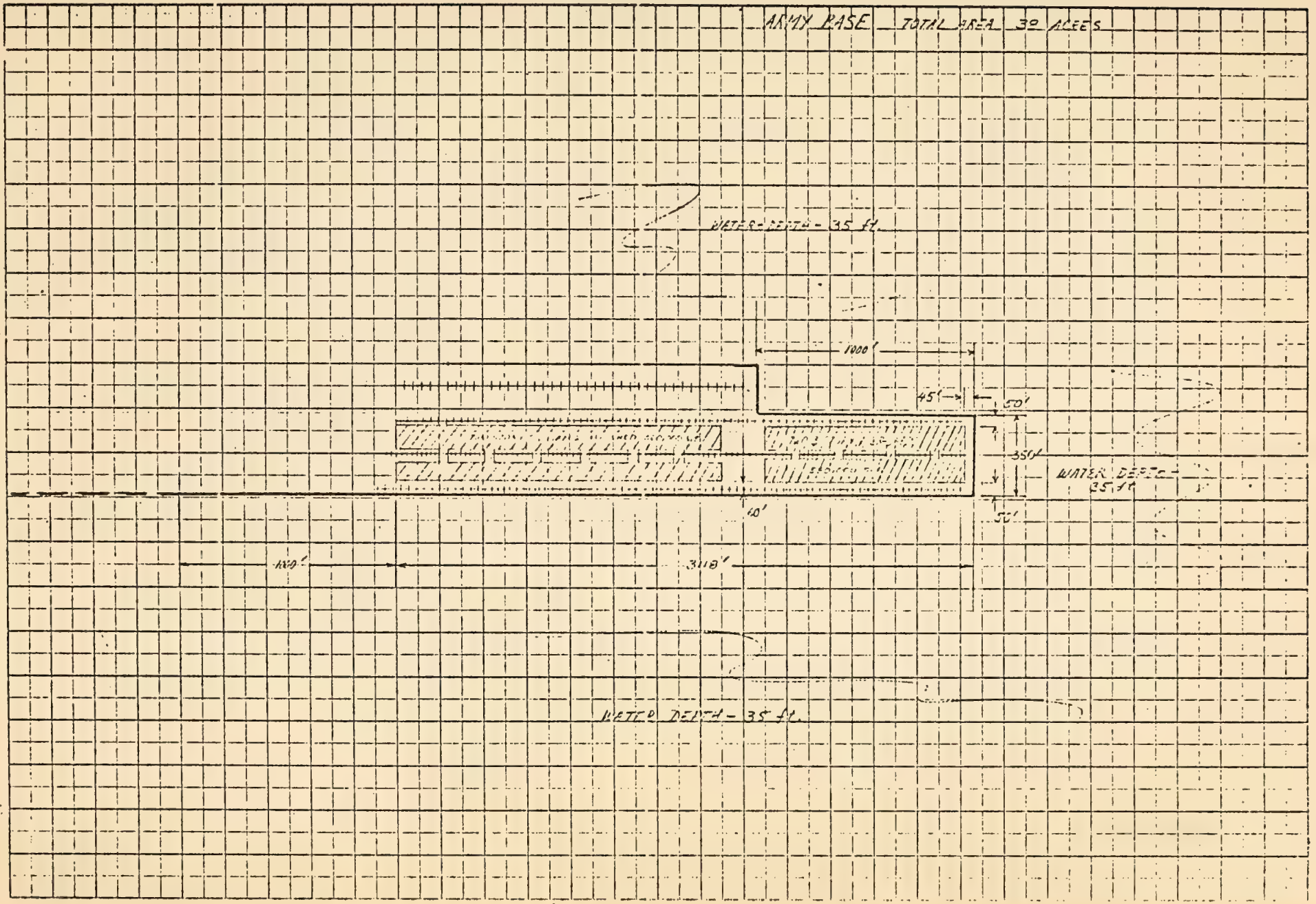
Operated by:	Mass. Port Authority
Total Area	12 acres
Coverage	246,000 s.f. (Pier 1)
	11,200 s.f. (Cargo Distribution Building)
3 General Cargo Berths	(Approx. Length - 500 ft.)
Truck Loading Positions	10 outside
	6 inside
Railroad Service by Boston & Main	
Security Area for High Value Cargo	4,300 s.f.
Produce warming area	2,150 s.f.
Construction: Pier 1	Concrete Apron Deck on H-Piles, bituminous paving in fill area, steel frame building.
Meat Inspection Station	
U. S. Customs Scale	

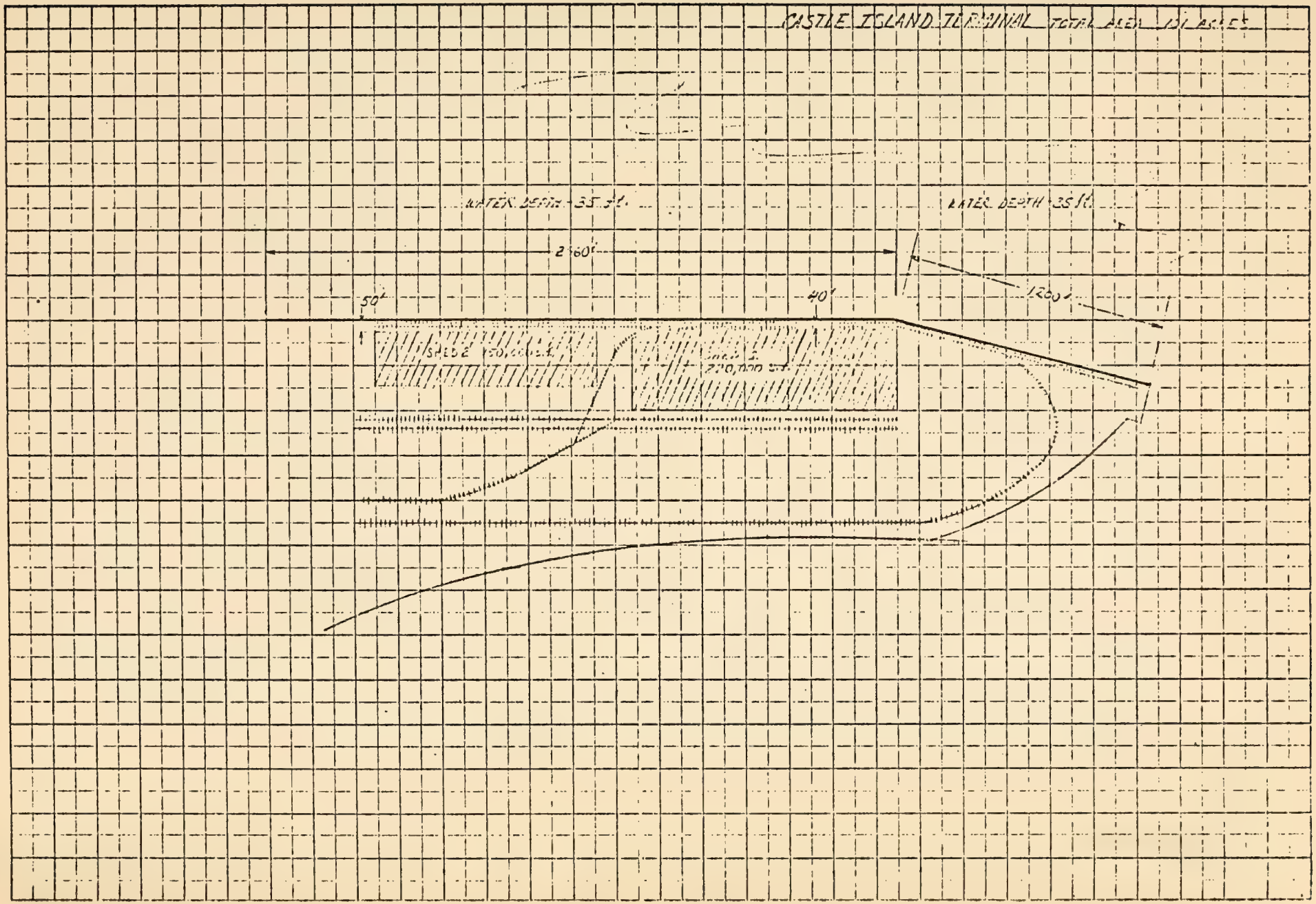
Table II

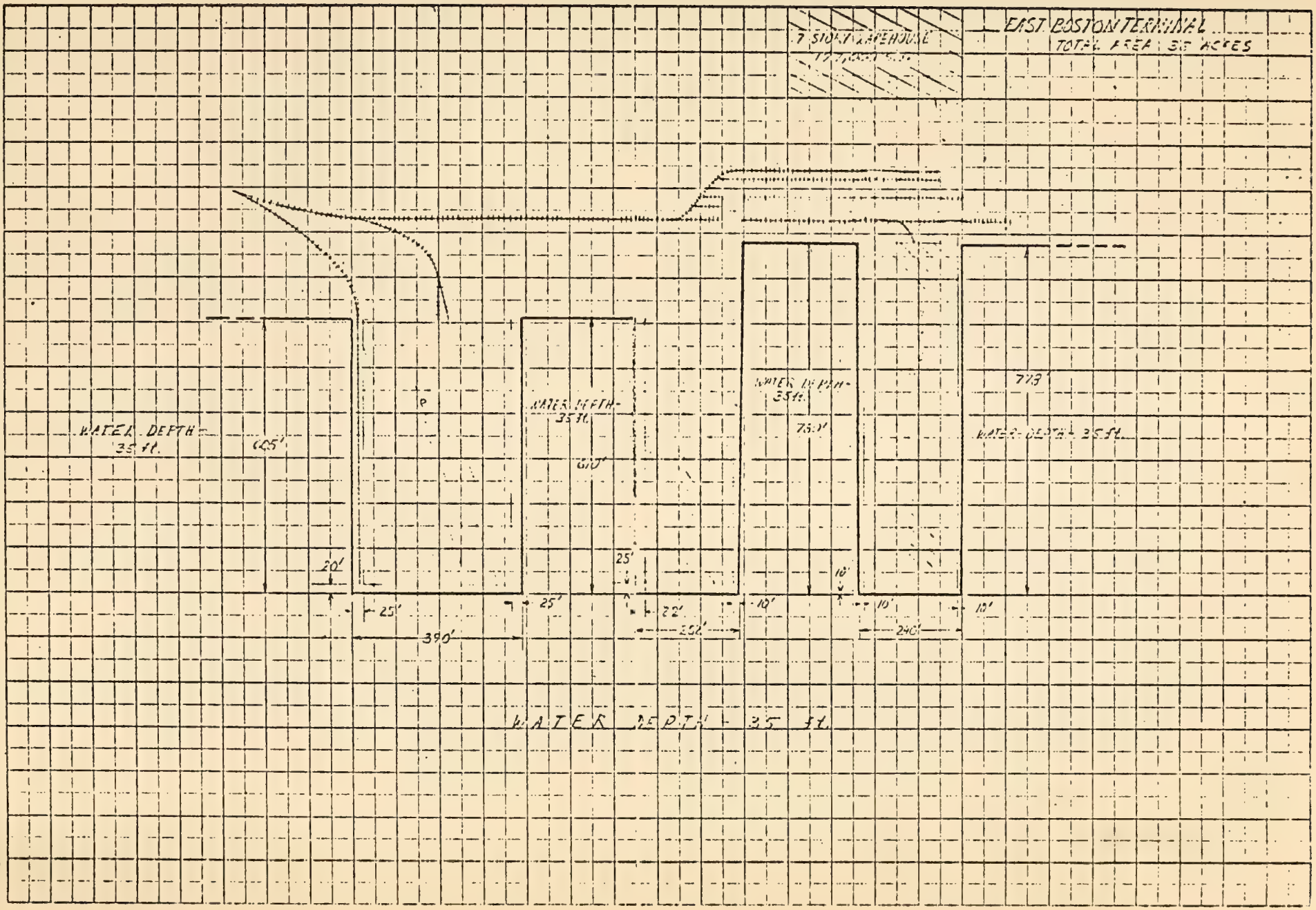
PIER NO.	TOTAL AREA	COVERED AREA	APPROX WIDTH	SURFACE CONDITION	SUPERSTRUCTURE	LOADING CAPACITY	ACCESS	UTILITIES	FIRE PROTECTION	STATUS	SECURITY FACILITIES	YEARS REMAIN	OTHER USE	OTHER
MUNI TERMINAL	524,000 SF OR 12 ACRES	251,000 SF	225'×10'×25'	BITUMINOUS PAVING W/ FILL AREA	CONCRETE DECK ON PILES	600 psf	RAILROAD; TRUCK ACCESS; 1 TRACK; 1 SIDE	5 ELECTRIC AT TRANSIT SHED, AND ONE AT EACH BERTH	FIRE ALARM SYS, U.S. CUSTOM CAGE; PROJECT SPRINKLERED AREA = 2,150 SY.	OWNED AND OPERATED BY THE P.M.A.	4,500 SF FENCED	34 YR AVERAGE		
EAST SIDE TERMINAL	1,520,000 SF OR 35 ACRES	104,500 SF	PIER 1: 25'×20'×225' PIER 3: 22'×25'×225' PIER 4: 15'×10'×10	PIER 1: CONCRETE DECK ON PILES; PIER 3 & 4: TIMBER DECK ON TIMBER PILES; BALANCE: CONCRETE PAVING	STEEL: CONCRETE FILLED PIPE PILES; PIER 1 & 4: TIMBER DECK ON TIMBER PILES	ALL PIERS 500 psf	RAILROAD FOR ENTIRE LENGTH OF PIERS 1, 3, AND 4	1 GENERAL PURPOSE @ 400 ft; 1 @ 900 ft	U.S. CUSTOM CAGE; 20-METAL DETECTOR & X-RAY MACH. ON PIER 1; LIGHTING SYSTEM	OPERATED BY PAN HARBOR; MEMBER OF P.M.A.		33 YR AVERAGE		
[illegible] PIER	348,000 SF OR 8 ACRES	208,000 SF	15'×20'×20'	BITUMINOUS PAVING	FILL REMAINED BY SHEET PILE BULKHEAD	600 psf	RAILROAD; POSSIBLE; 2 TRACK COVERED POSITIONS	5 GENERAL PURPOSE 208 ft; 2 @ 350 ft; 3 @ 450 ft	IRON FIRE MAIN; 100,000 GAL. SKAIN ELEV.	OWNED AND OPERATED BY THE P.M.A.	3,500 SF FENCED	35 YR		
[illegible] PIER NO. 1	423,000 SF OR [illegible] ACRES	223,500 SF	20'×35'×20'	FIRST FLOOR: CONCRETE FOR ALL DECKS AND SLABS; FILL AREA: CONCRETE DECK ON UPPER FLOOR	FIRST FLOOR: CONCRETE AND MASONRY ON CAISSONS; THREE STORY BUILDING	FIRST FLOOR: 350 psf SECOND FLOOR: 200 psf	RAILROAD: [illegible] TRACK COVERED FACILITY	1 GENERAL PURPOSE 400 ft; 1 @ 900 ft	2 FIRE PUMPS 1,250 GPM; 2,250 GPM SEA WATER; 1 ELECTRIC; 1 DIESEL; HEAT SMOKE STA.	PIER 5 IS OWNED AND OPERATED BY THE PORT OF [illegible] LEASED TO P.M.A.		40 YR		
ARMY BASE TERMINAL	1,650,000 SF OR 38 ACRES	950,000 SF	20'×45'×20'	CONCRETE DECK; ASPHALT SURFACE FOR [illegible] CONCRETE FOR ROAD DECKS	TIMBER PILES WITH CONCRETE CAPS; TIMBER DECK AND BRACING; CONCRETE DECK AND BEAMS ON STEEL PILES	500 PSF ON APRON; WAREHOUSE [illegible] 1-1 [illegible] 2-400 psf; 1 [illegible] 1 [illegible]	RAILROAD; PIER 1 CONNECTS TO 67 TRACK COVERED POSITIONS	2 GENERAL PURPOSE APPROXIMATELY 1,000 ft - 500 ft	HEAT SMOKE STA.	LEASED FROM [illegible] PIER 1 WITH [illegible]		35 YR		
[illegible] ISLAND TERMINAL	[illegible]	[illegible]	30' PIERS	[illegible] ON [illegible]	[illegible]	50 psf	[illegible]	1 GENERAL [illegible]	HEAT SMOKE STA. EQUIPPED FOR SEA-BOARD	[illegible] OWNED OPERATED BY P.M.A.		35 YR		


HOOSAC PIER TOTAL AREA 5 ACRES
TYPE 2 TRANSIT SHED
205,000 S.F. COVERED
375'
55'
200'
400'


COMMENWEALTH MER TOTAL AREA 11 ACRES
NO. 5
WATER DEPTH - 40 FT
20'
WATER DEPTH - 40 FT
400'
30'
35'
1200'
WATER DEPTH - 40 FT


ARMY BASE TOTAL AREA 30 ACRES
WATER DEPTH - 35 ft.
1000'
45'
50'
350'
WATER DEPTH - 35 ft.
50'
40'
1110'
3118'
WATER DEPTH - 35 ft.


CASTLE ISLAND TERMINAL TOTAL AREA 151 ACRES
WATER DEPTH -35 Ft.
WATER DEPTH -35 Ft.
2360'
1260'
50'
40'
SHED 1 150,000 S.F.
SHED 2 220,000 S.F.


EAST BOSTON TERMINAL
TOTAL AREA 33 ACRES
7 STORY WAREHOUSE
WATER DEPTH - 35 ft.
625'
WATER DEPTH - 35 ft.
610'
WATER DEPTH - 35 ft.
750'
773'
WATER DEPTH - 35 ft.
20'
25'
25'
25'
22'
10'
10'
10'
390'
252'
240'
WATER DEPTH - 35 ft.

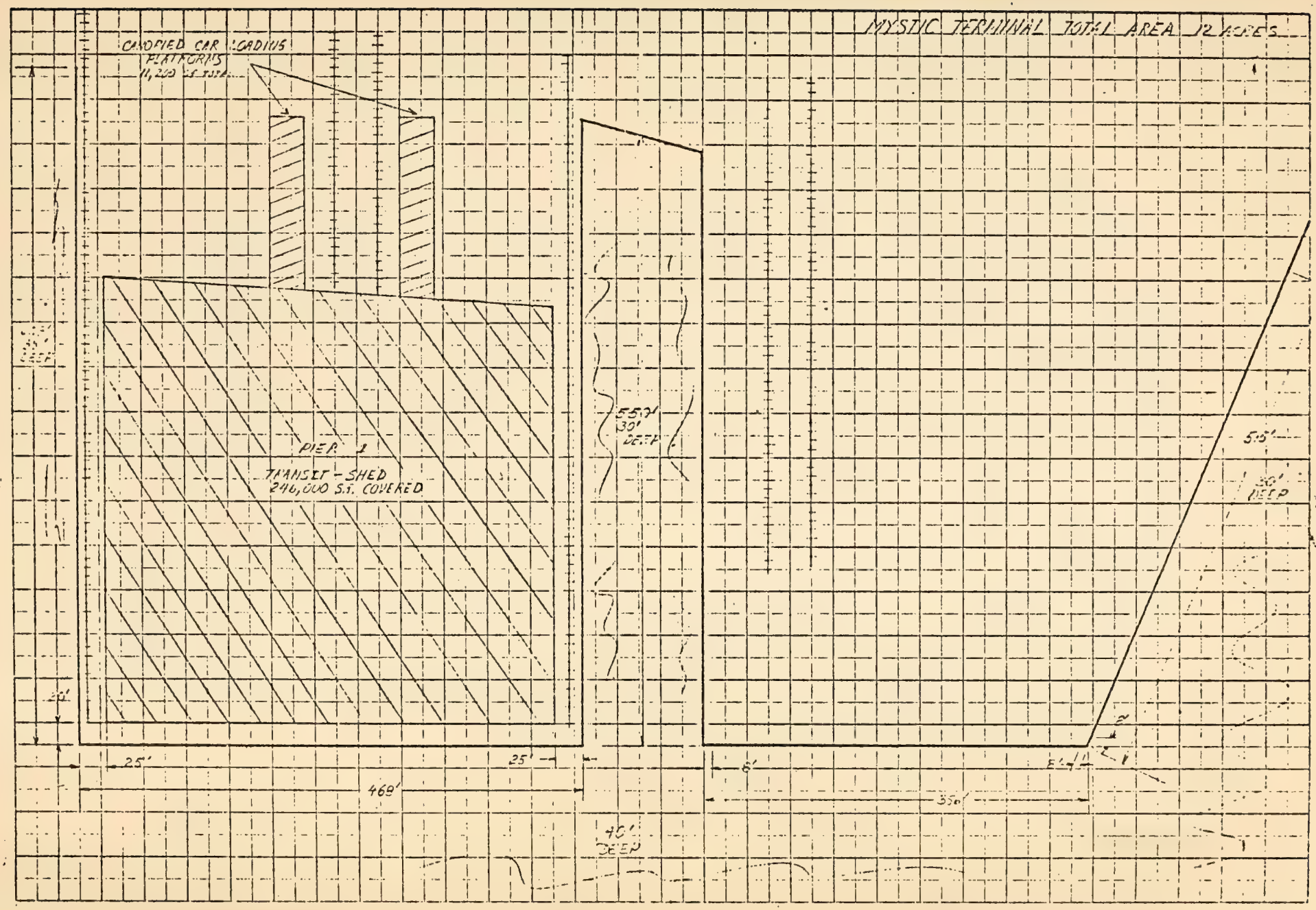
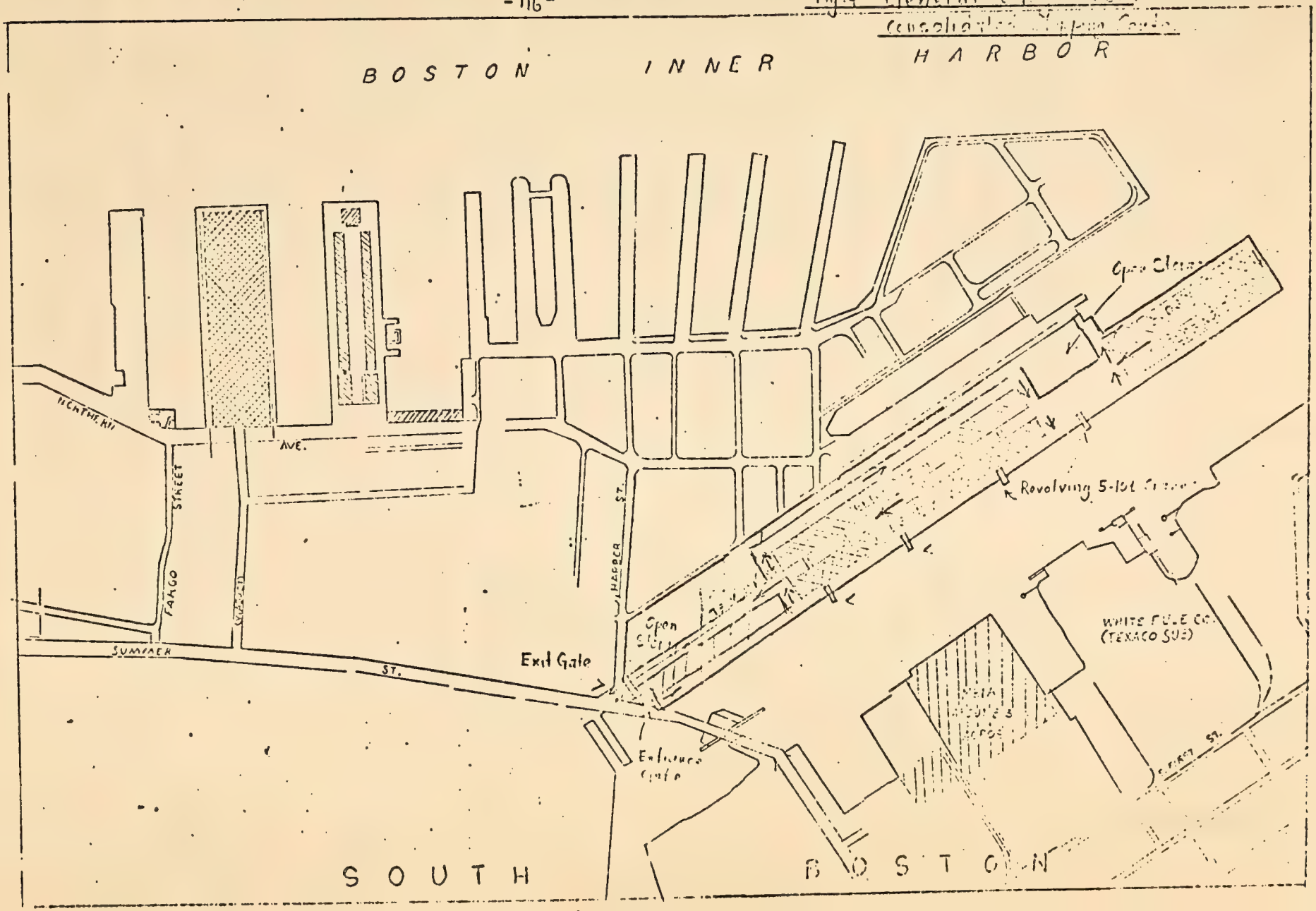

MYSTIC TERMINAL TOTAL AREA 12 ACRES
CANOPIED CAR LOADING PLATFORMS 11,200 S.F. TOTAL
PIER 1
TRANSIT - SHED
246,000 S.F. COVERED
550'
30' DEEP
515'
30' DEEP
25'
25'
469'
6'
350'
40' DEEP

Fig. 4 General Cross Port



Mystic Pier No. 1

This Pier was placed in service in August, 1952. It is operated as a complete terminal by The Mystic Terminal Company, Boston and Maine Railroad.

Basically, this Pier is similar to Noosac Pier No. 1, being purely functional in character. The Pier is approximately 900 feet long by 168 feet wide and the single-deck transit shed, constructed entirely of fire-resistant materials, has covered floor space of about 246,000 square feet. The Pier has a berth capacity for three deep-vessels at berths supported by the transit shed, and one open berth on the South side for tie-up or bulk-cargo operations. All berths have available 35 feet at M.L.W. Rail access is secured by three tracks in a depressed well in the shed center, and flush tracks on the North and South working aprons. Two canopied car unloading or loading platforms, one on each side of the track well, with a capacity of six cars each, project from the front end of the transit shed. Two truck loading docks, tailboard height, are located at the inshore end and ramps on both sides provide easy access for trucks into the transit shed. The inshore end of the building, on both the North and South sides, contain offices, warm rooms, gear lockers and other pertinent facilities for the use of Customs, steamship operators and stevedores.

Open Dock--Mystic River, Everett

This facility is owned and operated by the Mystic Steamship Division of [illegible] Gas and Fuel Associates and is available by contract for the handling of dry and liquid bulk commodities. The berth is 800 feet long and dredged to accommodate deep draft vessels at any stage of the tide. The storage fields cover an area of approximately one quarter million square feet with adjoining [illegible]

available for increased requirements. This facility is served by the New York Central System. A combination railroad-motor truck scale is conveniently located on the property. This facility is presently used for the importation and storage of liquid sulphur.

Wiggin Terminals, Inc.

Wiggin Terminals, Inc., has a merchandise terminal with a covered pier shed 800 feet long and 145 feet wide. Pier for deep water cargo vessels dredged to 30 feet depth at mean low water. Warehouses of fireproof construction adjacent to pier shed with a capacity of 600,000 square feet of floor space.

B. & M. R. R. Sidings

This terminal has 2 fumigation tanks equipped with conveyor system to handle approximately 800 bales per day. The fumigation plant is under the supervision of the Bureau of Entomology, Department of Agriculture, and is the only facility of its kind in New England.

Mechanical handling equipment on this pier consists of Lift Trucks of the following capacities: -- 2 of 1,500 #; 13 of 2,000 #; 2 of 3,000 #; 2 of 3,500 # and 2 of 5,000 #.

CHARLESTOWN TERMINALS

Schiavone Area

In Planning process by	Mass. Port Authority
Scrap operation by:	Schiavone & Sons, Inc.
Total area:	42 acres
Planned use:	
Initially:	Scrap operation - 17 acres General Cargo berth with 900 ft. marginal wharf, paved yard area, access roads - 25 acres.

Ultimately: Container terminal with flexibility for handling unit loads of steel, pulp, etc., including 1800 ft. marginal wharf, crane, paved yard area, access, and utilities.

Intial development is now being designed.

Schiavone's Terminal and M.P.A. Container Facility, Mystic River, Charlestown

This facility consists of 1100 feet of berthing space with water depth of 30 feet MLW, and can accommodate 2 vessels simultaneously. The land area consists of approximately 20 acres, with 12 miles of track capable of storing 500 railroad cars. This facility was used for handling and storing various bulk commodities including steel scrap. Equipment consists of 2 electric Clyde Gantry Cranes, 2 Diesel Electric Locomotive Cranes, 4 Crawler Cranes, (all equipped with magnets or buckets with lifting capacity up to 20 tons), and 2 shifting engines. Two railroad scales and a truck scale are located on the premises. This facility is now owned and operated by M.P.A. and is served by the Boston & Main Railroad. The facility now largely comprises the M.P.A.-Mystic River Container Terminal equipped with 2 large gantry cranes. One of these cranes is made by IHI and the other by Paceco, with a 70 and 40 ST lift capacity respectively. The cranes cover, in addition to the widest container ship beam, an inland area of about 120' in depth. The container facility which covers about 80% of the old Schiavone Terminal also comprises various types of pier equipment such as a travel lift type gantry crane which spans 4 rows of stored containers up to 3 high. An administrative building with a control tower is also incorporated in this well equipped facility.

CHARLESTOWN TERMINALS

Hoosac Pier

Not active now, may be traded for Army Base Building
Operated by MPA - not active for 7 months scon to be traded for Army Base Building.

Total Area	8 acres
Covered Storage	208,000 s.f.
3 General Cargo Berths (2 @ 550 ft.;	1 @ 450 ft.)
Truck Loading Positions	7 with adjustable dock boards
Railroad Service by Boston & Maine	
Security Area for High Value Cargo	3,500 s.f.
Construction:	Fill retained by steel sheet pile bulkhead, bituminous paving, steel frame building.
Grain Elevator - No longer active.	900,000 bushel capacity.

Hoosac Pier No. 1

This Pier was placed in service in August 1950. It was erected on the site of the former Hoosac Docks and is operated by the Massachusetts Port Authority.

The pier is a three-berth, skew-type finger pier, 540 feet long by 515 feet wide, of solid earth fill construction retained by a sheet steel bulkhead. The fire-resistant transit shed covers an area of about four and one-half acres. There are two sets of rail tracks in a depressed well in the center of the shed, together with single flush tracks on the north and on the south aprons. These aprons are 25 feet wide. The apron at the end berth has a 20 foot working apron. On the inshore end are entrance ramps for trucks and variable tailboard-height loading docks. The deck is surfaced with bituminous concrete.

Hoosac Grain Elevator

This elevator, adjacent to the terminal, has a storage capacity of 1 million bushels and is equipped with a high speed grain gallery capable of delivering 30,000 bushels per hour direct to vessels at the docks.

SOUTH BOSTON TERMINALS

Commonwealth Pier No. 5

Operated by:	Massachusetts Port Authority
Total Area	11 acres
Covered Storage	600,500 s.f. on two levels
4 General Cargo Berths	(Approximate length - 700 ft.)
Truck loading from floor within Pier	

Railroad Service	Penn Central
Construction	Concrete apron deck on caissons, slab on grade in fill area, steel frame building, concrete deck on upper level floor.
Access:	Lower level - directly from Northern Avenue. Upper level - directly by Viaduct (Ramp from Northern Avenue, Viaduct from Summer Street (Viaduct owned by Mass. Port Authority. Steel framing concrete deck, bituminous paving).
Passenger Lounge	2,850 s.f.
Freezer (-10°F)	64,000 s.f., 1,000,000 cu. ft.
Meat Inspection Station	
Exhibition Hall	2nd floor.

Commonwealth Pier

Operated by the Massachusetts Port Authority, Commonwealth Pier is 1,200 feet long and 400 feet wide, with a 20-foot apron on each side. It has berthing space for five large vessels and will accommodate the largest passenger and cargo ships afloat. The building is of steel and concrete, and is 1,167 feet long, 360 feet wide, two stories high and has a floor area of 600,000 square feet. Part of the upper story is especially designed and equipped for overseas passenger traffic.

Six tracks, connecting directly with the New York, New Haven and Hartford Railroad, run nearly the entire length of the pier. Four of these are in the pier shed and are depressed so that the car floor is on a level with the floor of the shed. The remaining two are in the open, one on each apron,

permitting direct transfer of cargo between rail car and vessel. The pier is equipped with five large freight and passenger elevators. It is considered to be one of the finest passenger/cargo piers on the Atlantic seaboard.

SOUTH BOSTON TERMINALS

Army Base Terminal

Leased by:	Mass. Port Authority - from U.S. Government
Operated by:	Port Terminals, inc. (Under lease from Mass. Port Authority)
Total Area:	38 acres
Covered Storage:	Wharf Shed - 360,000 s.f. on two floors
	N. Pier Shed - 290,000 s.f. on three floors
	S. Pier Shed - 290,000 s.f. on three floors
8-General Cargo Berths	(Approximate length - 500 ft.)
Truck Loading Positions	67
Railroad Service by:	Penn Central
Construction:	Concrete Apron deck cantilevered from gravity retaining wall; concrete deck and framing on timber piles in fill: Wharf Shed - Steel framing, concrete floors; Pier Sheds - Concrete framing, decks.
Meat Inspection Station	

The Army Base

This facility is 4,118 feet long and 350 feet wide--was constructed by the United States Government at a cost of $30,000,000 of which $25,000,000 represents the cost of the buildings. The storage warehouse is about one-third of a mile long 126 feet wide, eight stories high and has a total floor area of 1,651,100 square feet. The wharf shed is 1,636 feet long,

100 feet wide, two stories high and has a floor area of 360,000 square feet. Two pier sheds, each 92½ by 100 feet and three stores high, have a total floor area of 580,000 square feet. In the wharf shed and pier sheds--which are of modern steel and concrete construction--there is available excellent shipside storage space with low insurance rates rates applicable.

The terminal, which was the principal facility in the Boston Port of Embarkation during World War II, is equipped with modern cargo handling devices, including elevators of large capacity. As many as ten large ocean vessels may be berthed at one time. Trackage of the New York, New Haven and Hartford Railroad extend the entire length of this terminal, permitting direct transfer of cargo between ship and rail car. This results in expeditious and economical handling of all kinds of merchandise by sea, rail or highway conveyance.

The Army Base is situated off Summer Street, and is only a short distance from the Southeast Expressway.

The terminal is operated by Port Terminals, Inc. under lease from the Massachusetts Port Authority.

SOUTH BOSTON TERMINALS

Castle Island Terminal

Operated by:	Mass. Port Authority
Total Area:	101 Acres
Covered Storage:	Shed #1 - 110,000 s.f.
	Shed #2 - 150,000 s.f.
7 - General Cargo Berths:	(Approx. length - 600 ft.)
Truck Loading Positions:	80
Railroad Service by:	Penn Central

Construction:	Concrete on timber apron deck on timber piles except berths 16 & 17 which are reinforced concrete deck on timber piles. Shed 1 - partially steel frame, partially timber frame. Shed 2 - timber frame.
Meat Inspection Station	
Sub-Leased Areas:	
Sea Land Area:	10 Acres yard area 27 - 1/2 ton Container Crane Maintenance Garage
Cement Terminal	- 2 acres ±
Petroleum Terminal	- 5 Acres ±
Volkswagen Terminal	- 11 Acres ±
Weyerhauser Lumber Area	- 6 Acres ±

Castle Island Terminal

Castle Island Terminal is located almost directly opposite the Army Base across the reserved channel. Included in Castle Island's facilities are two one-story transit sheds with a gross area of 300,000 square feet and a continuous concrete wharf 4,160 feet long providing berthing space for seven vessels. The general holding yards at the rear of the sheds have a capacity of 375 railroad cars; and there are open storage holding tracks for 140 cars. This terminal is serviced by a double track line 6,500 feet long connecting with New York, New Haven and Hartford railroad yards. The terminal is operated under lease to Higgin Terminals, Inc. from the Massachusetts Port Authority.

There is a fully equipped modern lumber terminal with about 35 acres of open storage space, operated by experienced personnel.

Wiggin Terminals, Inc., has mechanical handling equipment consisting of 13--7½ ton lift trucks; 19 Lumber Carriers--30,000 # capacity each and 2--2½ ton lift trucks.

The 4,000,000 square feet of open storage and cargo area, including 400,000 square feet of covered transit space, offer complete cargo facilities.

Sea Land Services, Inc. leases 10 acres of Castle Island Terminal adjacent to berth 17, at which is erected a 27-ton crane for loading/unloading of containerships. Sea Land operates trans-Atlantic, coastwise, intercoastal and Puerto Rican containership services from this location.

Inventory of Facilities (Private)

Introduction

This section lists the capabilities and generally describes the location and outstanding features of private piers handling leading commodities in the Port of Boston.

Petroleum

There are twenty private piers and wharves owned by 15 companies which handle approximately 97 1/2 percent of all petroleum traffic in the Port of Boston. Although actual volume

flow at each pier is not available, a listing of each pier's storage capacity is available. The following companies are listed by general Port-of-Boston location.

1. Chelsea River Area

Pier Name	Storage Capacity
Gulf Oil Co., Barge Wharf	---
American Oil Co.	872,000 barrels
Cities Service Oil Wharf	324,800 "
Mobil Oil Corp. Wharf	1,238,000 "
State Fuel Co. Wharf	595,238 "
Atlantic-Ritchfield Co. Pier	910,000 "
Sunoco Pier	544,000 "
Union Oil Co. Pier	1,075,900 "
Gulf Oil Corp., Tanker Wharf	1,392,608 "
Total	6,953,501 Barrels

2. Main Waterfront

Pier Name	Storage Capacity
White Fuel Oil Corp. South Boston Barge Wharf	2,305,000 barrels
White Fuel Corp. South Boston Wharf	
Quincy Oil Co., Plant No. 4; Deep Water Terminal Wharf	740,240 "
Quincy Oil Co. Wharf	23,800 "
Texaco Pier	257,000 "
Total	3,616,040 Barrels

Note--Castle Island Terminal, Berth No. 11, is not included. See section III.

3. Mystic River

Pier Name	Storage Capacity
Metropolitan Petroleum Co. Wharf	579,000 barrels
Pennsylvania Oil Co. Wharf	23,800 "
Chevron Oil Co. Wharf	11,238 "
Humble Oil & Refining Co. Everett Terminal Wharf	2,300,000 "
Total	2,914,038 Barrels

4. Weymouth Fore River and Town River

Pier Name	Storage Capacity
Mobil Oil Corp., Quincy Terminal Wharf	539,127 barrels
Total	539,127 Barrels

Note--Morton Oil Co. Wharf, located on the Malden River, contains petroleum storage facilities for 28,300 barrels. All other private terminals located in the Port of Boston area handle a minimal amount of the total flow and are therefore not listed here.

Private Piers Handling Leading Bulk Commodities

1. Scrap Metal

   a. Prolerized New England Co., Scrap Metal Wharf located 2000 feet below Malden Bridge on Mystic River. Owned by Hugo Neu Steel Products Inc., and Proleride Transport Systems Inc. Loading rate 600 tons per hour.

FOR REVIEW ONLY

b. Mystic Wharf located 550 feet above Tobin Bridge on Mystic River. Owned by Schiavone Realty Corp. of Mass. Approximately 55 acres of open storage area along with all required equipment for metal scrap handling.

2. Bulk Cement

a. Marquette Cement Manufacturing Co. Wharf located on right bank of Island End River at junction with Mystic River. Owned by Allied Concrete Corp. Cement received by self-unloading vessels at 900 barrels per hour and stored in six cement storage silos holding a total of 105,800 barrels.

b. Atlantic Cement Co. Pier located at the foot of Allston and Pearl Streets extended, approximately 0.66 miles below the Malden Bridge on the Mystic River. Owned by Atlantic Cement Co. Inc. Bulk cement unloaded from barges at 175 tons per hour through four pipelines on pier. Storage capacity 40,000 barrels.

3. Salt

a. Eastern Minerals Pier located at Marginal Street, between foot of Shurtleff and Hawthorne Streets extended. Owned by Texaco Inc. Open area in rear for storage of salt.

b. Eastern Minerals Wharf located adjacent to east side of McArdle Bridge. Owned by Texaco Inc.

4. Gypsum

U.S. Gypsum Co. Wharf located under the Tobin Bridge. Owned by U.S. Gypsum Co. Receives gypsum from self-unloading vessels to 63,000-ton storage areas.

5. Sugar

Revere Sugar Refinery Wharf located at the foot of Sackville Street extended approximately one half mile below Malden Bridge in the Mystic River. Owned by the Revere Sugar Refinery. Cranes, towers, and conveyors transfer raw sugar to refinery. Warehouse storage capacity 22,000 short tons.

6. Mixed Commodities

a. Wiggens Terminals, Mystic River Wharf No. 51 located one-half mile above Tobin Bridge on Mystic River. Owned by Wiggens Terminals Inc. Receipt of general cargo. Cotton fumigation plant at rear of facility processes 2000 bales per day.

b. Prolerized New England Co., East Sulphur Wharf located on left bank of Mystic River approximately 2000 feet below Malden Bridge. Owned by Hugo Neu Steel Products Inc., and Proleride Transport Systems Inc. Receives liquid sulphur via pipeline to be stored in 10,000 long-ton capacity tank.

c. Procter and Gamble, Quincy Factory Wharf located on east side of Weymouth Fore River between south side of entrance to Town River Bay and Washington Street Bridge. Owned by Procter and Gamble Manufacturing Co. Receives vegetable oil, liquid caustic soda, and silicate of soda. Two four-inch pipelines extend from wharf to liquid storage tanks in rear.

d. Union Carbide Corp., West Chemical Wharf located approximately 1,600 feet below Malden Bridge. Owned by Eastern Marine Leasing Corp. Receives chemicals, petrochemicals and solvents. 295,000 barrel storage capacity.

Private mooring docks, U.S. Armed Forces Installations, small fish piers, and other small port installations make up the remaining port facilities. These do not in general handle major traffic items and were therefore not listed. All the piers are outlined in more detail in parts C and D of Appendix B.

Current Port Labor Conditions in Boston.

The number of men available for longshore work on M.P.A. piers is 600-650 men of which about 180 are hired each day, 300 are employed on a day to day basis, 50 are permanent (portwide) empoyees,and 70 are checkers hired on a day to day basis.Presently a $ 1.00/ton royalty is payable for container cargo.The comparative New York assessment is now for both GAI and shortfall about $ 2.30/ton.GAI (guaranteed income) is essentially ineffective in Boston due to the form of the labor contract.If an eligible longshoremen reports for work every day for example he is paid regardless of the availability of work.Hours are deducted for not reporting.The nature of longshore employment (irregularity) obviously effects the wortkers desire to report.

Boston is still the most expensive port on a $/ton basis. This is largely the result of labor restrictions and workrules. Facility conditions obviously also effect the output.

Labor conditions are negotiated by the Boston Shipping Association BSA board..The M.P.A. has two members on this board but as a minority component cannot generally effect conditions agreed.The board also handles problems of work stoppages e.t.c. Costs are normally passed on to the shippers or receivers and therefore the public.

(II) C.) Comparison of Facility and Forecast Demands

Introduction

The Port of Boston has many advantages compared to other North Atlantic Ports:

1) The harbor is well protected, has easy, straight access (5-7 miles) channels to open water, and extensive anchorage and turning facilities.

2) It is the closest major U. S. Port to Northern Europe.

3) Inasmuch as Boston is the first U.S. port of call for many vessels in many world trade routes it affords an opportunity for consignees of cargo located in the central states to receive their cargo in the shortest time by requesting Boston discharge.

4) Superhighways from Boston proper connect with thruways which extend to virtually all points in the U.S. and Canada which affords excellent motor trucks service to and from the port. Excellent service is also available on three railroads which reach all piers shipside throughout the port.

5) Since September 23, 1963, rail rates to and from points in Central Freight Association Territory have been adjusted so that these rates are now on a parity to and from all the North Atlantic Ports, thus permitting shippers located in the interior an opportunity to again effectively use the Port of Boston at no greater cost than any other Atlantic port.

6) It has over 30 usable berths for ships of lengths up to 800' and drafts of 35'-38' (exceptional 39').

7) Berths are all supported by extensive warehousing.

8) Most facilities are marginal piers.

9) Extensive rail marshalling yards are adjacent to berths.

10) Two new container cranes serve a modern efficient container terminal in Mystic River.

11) Another container terminal is located in Castle Island.

Although all of the above and other advantages should enhance the vitality of the port, its performance has been marginal. It should be noted that total cargo handled is on an incline, but the predominant and only increasing component of seaport cargo consists of liquid and dry bulk of which very little is handled in facilities owned, operated or controlled by M.P.A.

There are many reasons for this development. Some are the result of local conditions such as:

1. Insufficient cargo security.
2. Insufficient truck marshalling and access.
3. Access delays.
4. Insufficient apron space and resulting truck or heavy material handling equipment use to shipside on the Mystic and Army Base piers.
5. Dispersion of facilities (with small unit size) over large and noncontiguous waterfront.
6. Dispersion of facility control.
7. High cost of general break bulk cargo handling and storage.
8. Lack of flow organization and separation.
9. Inadequate pier cargo handling facilities.
10. Mixed cargo operations with resulting interference and labor problems.
11. Labor climate.

In addition, there are other factors such as:

1. Overcapacity of North-Atlantic ports and, in particular, container terminals.
2. Lack of industrial and agricultural base of sufficient size to generate a meaningful amount of export cargo.
3. ICC rate structures for trucks and rail.
4. General reduction in number of port calls by liner operators.

Boston's port break-bulk cargo activities have declined drastically in recent years as a result of high cost, low productivity of the dock labor force, pilferage, loss of cargo, high port charges, infrequent service, long transit time, obsolete physical facilities for consolidating and handling cargo and accommodating carrier vessels, changes in the structure of the economy unfavorable to the commodities and industries which have traditionally used the port, and changes in the location and technology of industries traditionally using Boston. The general cargo export trade has all but vanished; general cargo import trade is diminishing; and Boston's once dominant share in grain movements has apparently been lost to Baltimore and other ports during the extended period of litigation over the ICC ruling on rail freight tariff equalization.

In the years ahead, the situation of the port is likely to worsen, though for different reasons than its decline during the last few decades. The maritime transportation industry is developing capital-intensive operations -- completely unitized, containerized or special bulk carrier vessels, automated handling equipment, and, generally, larger ships. Larger ships mean a greater loss for time spent in port.

Such a trend, in which we substitute capital for labor, could prove beneficial to Boston's competitive position in view of its ruinous, enormous labor costs. However, under present conditions, it is unlikely that savings in labor cost will be realized without drastic changes. Moreover, capital needed to replace labor may be difficult to raise because profit may initially be uncertain. New transportation technologies favor large ports such as New York over medium size ports. Boston may find it difficult to attract the volume of business sufficient to enable it to offer the kind of services and rates offered by the port of New York.

Notwithstanding this pessimistic outlook, it is felt that the port of Boston has a potential and a responsibility. It is doubtful whether a city such as Boston can survive as the hub of a great metropolis and economic region without an active port. The present plight of the center city can be traced to the absence of radial commodity and service flow between the hub and the perimeter of surrounding communities. These communities have profitable industries and businesses, many of which have escaped the city of Boston to take advantage of flows from outside. Only if, and when, a major component of area imports and exports, and related storage, processing, and distributing facilities will return to the port of Boston, will the city regain the economic strength for its rehabilitation. Cities which have renounced their ports have historically renounced their claim to leadership, and Boston would not be an exception, as witnessed by recent trends. It is therefore not a question if anything can or should be done to "save" the port, but a question of how much deterioration, shame, corruption, unethical practice, selfish methods, pilferage, and waste of public asset, on whose success the welfare of the whole metropolitan and surrounding communities hinges, is required to arouse government and people.

It has become obvious that if matters are allowd to continue to deteriorate, all parties -- communities, labor, management, business, trade, and government -- will suffer. Port labor may temporarily be able to maintain artificial levels of employment, some business may for a short time benefit by rerouting or shortage of service, and the administration may even have temporary profits accruing from the seaport, but the trend is certain and irreversible without a determined and common effort. If the port is allowed to die -- and it well may, faster and more suddenly than blissfully imagined -- then dock labor, shipping business, trucking, railways, city and the community at large will all suffer. The hemmed-in conditions of the city's poor, living in slums and blighted areas, abandoned by industry which moved to the suburbs for ease of access to transportation and labor, can only be improved by a revitalization of the waterfront. This is the only area into which redevelopment and new employment opportunities can move.

These developments require as a prerequisite, the consolidation of the port functions and activities. Right now port facilities are spread over dozens of piers and miles of waterfront. These must be replaced by a much smaller but more efficient and fully integrated set of port facilities. Land and sea access to port facilities must be facilitated. New mechanized methods must be adopted and deeper water access bulk termini must be provided.

Recommendations to Meet Forecast Demands

Port Facilities

1. Consolidate and concentrate all general cargo handling operations in South Boston (Army Base). Convert the southern reserve channel piers into an expanded container and Ro-ro facility with special consideration to requirements of mini-container and Ro-ro ships.

It may be advantageous to consider an offshore (or even floating) refinery which incorporates an offshore tanker terminal and oil storage complex. Several proposals show attractive advantages.

8. The modern development of mini-ships and Ro-ro ferries offers opportunities for lucrative domestic and foreign coastal trade. Serious consideration should be given to the development of a special terminal for Ro-ro ferries (serving passenger and vehicular traffic) on the Commonwealth or South Annex piers. The success of the Car-Traines and Portland-Nova Scotia ferries indicate the popularity of this type of system.

Port Operation

1. In order to attract export cargo and increase break-bulk import cargo flow, free, well-guarded storage facilities should be offered with a liberal definition of free time.
2. Reduce port charges. Simplify charges to be all-inclusive. Charges should generally not exceed the lowest charges imposed by other major North Atlantic ports. Any initial deficit as a result of such a reduction can be recovered from additional income from lease or sale of redundant properties.
3. Protect cargo efficiently. Either the Port Authority or a law enforcement agency, and not the ship operators, shippers, receivers, etc., should assume responsibility for cargo (while cargo is physically on piers, in warehouses, etc.).
4. Establish one of the islands, or in the Army Base-Navy South Annex, trade zone port under Title 19 U.S.C.A., Sections 81a-81r (with an industrial center) which will provide storage, packaging, processing, assembly, and other facilities for re-export of goods. This development to be organized with public financing, and facilities leased to users. (Purpose: increased cargo flow, employment, port activity, etc.)
5. Develop an effective port-controlled centralized ship and cargo forecasting organization, to serve operators, shippers, business and labor. This organization will assure efficient planning, utilization of resources and labor, and control of cargo flow. The improved use of information and planning will be designed to offset the disadvantage of service infrequency and reduce transit time.

Organization

1. Establish a waterfront commission composed of Port Authority, Government, Industry, Management, Labor, Community and User representatives.

   Such a commission should regulate waterfront labor practices, as well as establish and run a central hiring hall in the South Boston port which will be co-located with all active general cargo piers. This commission should have the exclusive power to allocate and qualify labor for all activities related to the handling of cargo into, on or off the port facilities, with the exception of cargo or other handling within manufacturing, assembly, storage, etc., plants located in the free port zone or the bulk cargo termini.

Labor

1. Change work rules and practices (including clerk and watchkeeping) to permit gradual decasualization, more labor flexibility, and better use of manpower. Aim at open union and intensive training of labor, so as to achieve steady employment, improved wage practices, better working conditions and higher productivity.
2. Improve port labor morale. Use incentives such as steady, non-casual work conditions, appropriate pier equipment, pay, productivity bonuses, and a state-wide publicity effort on the importance of the port and its workers and their contribution to the state and its people, to elevate status, morale, and commitment of port labor.
3. Impose a mandatory retirement age of 65 years for longshoremen and clerks. Create a pension fund for that purpose. The high average age, and the pre-

dominance of men aged 55-70 on the piers, must be eliminated by retirement. Union to be induced to remove union cards on retirement of member.

Assessment of Capacities and Constraints

The port has an excess of general cargo pier and warehousing facilities, which are not expected to be used for seaport related activities in the future. Continued ownership, control or maintenance of these excess facilities appears, therefore, unwarranted. The amount of general cargo handled in the port will continue to slide as shown in Section II A 1. With an effective container shipping terminal this trend is expected to accelerate. The average number of general cargo ships in port by 1975 is expected to be less about 1, with a probability of 95% of never having more than 6 general cargo ships in port simultaneously. In addition, an average of 1 container ship and a maximum of 2 container ships simultaneously in port are expected. The average number of ships in port will not increase even if optimum cargo forecasts are attained (see Table 2). Just over 3 general cargo and container ships on the average are expected in port simultaneously during the 1975 to 1980 period, as a result of:

1. The more regular schedule of container ships
2. The shorter port time of container ships
3. Larger unit load and cargo transfer per ship call

The probability of more than 8 ships in port at any one time is, again, less than 5%.

It should also be noted that the probability of more than 10 ships in port under both conditions described above is less than 1%. This situation would conceivably only occur as a result of strikes or acts of God.

It is, therefore, assessed that facilities capable of accommodating 10 general cargo and container vessels consisting of container terminal for 3 vessels of designs and dimensions projected for the 1975-1990 period will satisfy port requirements.

The oil terminals in the seaport have sufficient distribution and receiving storage capacity, but lack a capability of handling the increasing size of product tankers. Various possible future developments in petroleum handling are foreseen. Assuming the seaport attempts to continue to handle the oil receipts for distribution to the Greater Boston environment, an annual throughflow increase of 2% must be expected. The gradual elimination of the "handy" World War II tankers and their jumboized versions, which at this time comprise over 60% of all U.S. product tankers operating on the East Coast, will introduce the consideration for adoption of larger, more economic ships, and barges. Boston urgently requires a deeper, wider, more versatile oil terminal to retain the oil distribution trade. The facilities in Chelsea creek with both beam and depth restrictions, complex access routes and time consuming turnaround problems will be obsolete within the next decade. The bulk cargo handling facilities (private) primarily located in the Mystic River are effective in handling their current volume and have a capacity to satisy forecast throughput until 1975. An increasing amount of bulk cargo is expected to be delivered to these facilities by coastal barges of ever increasing size. The low cost of operation and small draught of such barges will permit continued use of these facilities without modifications.

Another important consideration is the impact of natural gas. The Boston Gas Company terminal facility at Commercial Point, Dorchester, is receiving a steady stream of LNG tankers from Algeria. An additional LNG landing terminal exists in Everett owned by Distigas, with 2 tanks (including a 330,000 bbls. tank which is the largest in the country). The latter terminal, though operative, has only received a smaller number of vessels so far.

(II) D.) Impact on Boston (General Summary)

Although the city of Boston has, in recent years, turned its back on the seaport, the port remains an important economic asset, and a vital element for the city's growth, vitality, and economic health. Greater Boston has a highly unbalanced economic base, not only from the point of view of imbalance of commodity and raw material flow in and out, but also as a result of:

1. Imbalance in employment opportunity between high and low skill workers.
2. Imbalance of employment opportunity location distribution.
3. Imbalance in goods and capital flow.
4. Large dependence of local economy on federal (defense) funding.
5. Lack of large secondary industries.
6. Abandonment of inner city industry.
7. Lack of integration of goods transportation system.

The Boston City waterfront provides in many instances the only opportunity for improvements such as:

1. Provision of land for urban renewal and low cost housing.
2. Inner city recreation.
3. Reestablishment of employment opportunities.
4. Integration of goods transportation systems.

The large imbalance of residence and employment in the city of Boston must be reversed if the city is to survive as the hub of the area and not just an administrative center. Commerce must be reattracted, and the city must be transformed into a better place to work and live. The redevelopment of the seaport provides the potential means for all of these.

A redevelopment seaport could become an economic asset to the city and region by attracting increased volume and

value of commodity flow as a result of more efficient integrated operations. As a result, it is forecast that:

1. Commodity flow through the seaport could reach a value of over $1.4 billion by 1975, $1.9 billion by 1980 and $2.7 billion by 1990.
2. Employment in direct seaport related activities could increase from an average 1,380 (including stevedoring, clerking, checking, etc.) to 1,500 by 1975, 1,800 by 1980 and 2,200 by 1990.
3. A total of 200-240 acres of waterfront land could be diverted to urban renewal, recreation, industrial and commercial development.
4. As a result, a residential community of over 100,000 and employment in waterfront industry, recreation, etc. for about 28,000 could be established.
5. The tax base of the city would be raised by several hundred million dollars (based on current evaluation).
6. Large additional revenues would accrue to local business as a result of increase cargo flow activity in the port.
7. Renewed and integrated port activity, resulting in profitable increased inland commodity transportation and distribution will provide a sound economic basis for the development of better passenger transportation.

III. Alternate Development Possibilities

A.) Consolidated South Boston Shipping Center

1.) Purpose

It is the function of this section to desxribe the rational, physical layout, cost, constraint, and implementation of a Consolidated Shipping Center in South Boston. This shipping center is designed to handle all future dry break-bulk cargo through the port of Boston as well as dry containerized or otherwise unitized cargo. Our findings indicate that the large separation and small unit size of the various Boston port dry cargo handling piers results in inefficiency of handling, ineffective use of manpower, uneconomic access and regress of feeder transport, and inefficient control. The proliferation of activities over a wide area, furthermore, does not permit efficient use of equipment and the resulting incentive for cargo handling improvements by capital investment into modern handling methods.

For many years the productivity of dock side labor in Boston has been among the lowest of any United States or foreign port. This includes not only stevedores but also checkers, guards, truck drivers, and so forth. Similarly, activities of feeder lines equipment such as trucks, barges, and railroad equipment is inefficient by virtue of the great spread out of activities, many of which are extremely limited and confined access and regress and are remote from major arteries and feeder lines.

Another objection is the relation of many of the currently used dry cargo piers to cargo consolidation activities and junctions of other transportation modes by which cargo must be moved from or to inland points.

The vast majority of dry cargo import or export through the port of Boston is neither generated nor destined to

the inner city and must, therefore, pass through the confines of Metropolitan Boston to reach its destination. This imposes a major burden on traffic flow in the inner city, Charlestown and East Boston, and contributes largely to the bottlenecks occuring at critical points, such as expressway ramps connecting these areas to outlying areas.

As a result, we have arranged the facilities as a consolidation of port activities. It was found that South Boston not only provides special capacity for handling this type of cargo, but also provides capability for access and agress to feeder lines, arteries and storage facilities. This location, furthermore, provides a capability for improved use of existing labor and the provision of new job opportunities. A revitalization of the area is urgently needed and it is expected that such a development would provide meaningful economic advantages to South Boston, the city, and the Commonwealth. The available labor pool in the area is sufficient and experienced. In addition, the location of the consolidated port in South Boston provides an added attraction to the ship operator by virtue of reduced turn-around time as manoeuvering of ships to these berths is expected to require substantially less time (on the average) than berthing at inner port piers.

Consolidation of activities and facilities is expected to lead to increased efficiency in facility, equipment and labor use and resulting benefits of higher productivity, lower unit handling cost, shorter total port time per ship call, higher capital investment utilization, and incentives for the development or use of South Boston storage, consolidation, manufacturing, or packaging operations. This area is closely situated to the blighted areas of South Boston, Dorchester, and Roxbury and provides by such a development, a unique opportunity for establishment of integral employment of large numbers of workers close to their residence,

projected urban redevelopment or low cost housing projects, while at the same time offering opportunities for the meaningful establishment of capital intensive private facilities which may increase the tax base of the city.

On the other hand, the proposed plan offers the opportunity for intensive development of other parts of the city. It will be shown that other port facilities are redundant, from a seaport use point of view, and could serve to satisfy urgent development needs. The Boston waterfront is practically the only large tract available for redevelopment in the inner city. Only if seaport activities are eventually moved out of the inner harbor (with the exception of petroleum, dry bulk and container operations in the Mystic and Chelsea Rivers), LNG terminals in Everett and Dorchester, and offshore petroleum terminals can well coordinated and effective inner city waterfront redevelopment be effected. Proliferation of low intensity seaport activities spread over the whole waterfront is not conducive to effective planned development.

(III A) 2.) Benefits

2a) Port Efficiency

The major purpose of the Consolidated South Boston Shipping Center is to concentrate all dry break bulk, roll-on, roll-off, and certain container cargo handling operations in the integrated part of the port in which all required facilities, equipment, and labor are concentrated, to be effectively utilized. The South Boston location is uniquely qualified, as even without additional development or acquisitions, it already contains the bulk of the port facilities. Out of a total M.P.A. controlled berthing space of 21,391 feet, South Boston accounts for 12,028 feet (including Commonwealth Pier) or 9,228 feet (excluding Commonwealth Pier). As over

8,500 feet of this berthing space is along marginal piers, it provides flexibility and efficiency of use, the ability to effectively berth various lengths of ships. The finger piers of East Boston and Charlestown are limited in length and berthing footage is not effectively used if shorter ships occupy the space. It has been found that under full utilization demand, by a mix of ships similar to that calling on Boston, marginal piers will obtain over 40% more effective use per footage than finger piers. As a result, it is expected that the flow of cargo as well as resulting revenue, employment, and utilization per foot of berth space maintained will increase very appreciably in the consolidated center. The available berthing in South Boston has uniform depth alongside of 35 ft. MWL, while Commonwealth Pier is maintained at 40 ft. MWL, it may be possible to provide a uniform depth of 40 ft. all along the South Boston berthing.

The Boston seaport contains a total of 78.0 acres of open storage area (including the Schiavonne container terminal). Of this area, 41.8 acres or more than 85% are located in South Boston. In addition, open South Boston port storage areas have superior access to rail and roal arteries and marshalling which cannot be said for most of the other port facilities. The port of Boston contains about 2,873,000 sq. feet of dry storage of which nearly 80% or 2,280,000 sq. feet are located in South Boston, adjacent or easily accessible to the proposed shipping center.

Pier transit sheds in South Boston comprise 1,523,900 sq. feet (500,000 sq. feet on Commonwealth Pier) out of a total of 2,376,231 sq. feet on M.P.A. piers. While only 1.136 million cubic feet of cold storage out of a total Boston Metropolitan of 11.422 million

cubic feet is located in South Boston, it should be pointed out that Commonwealth Pier in South Boston comprises by far the largest waterfront cold storage facility and that the remainder with some very small exceptions are located well inland in such places as Watertown, which surely is as easily accessible from South Boston as from any other part of the seaport. A major advantage of the location is obviously its closeness to the open sea. Castle Island point is less than a mile from the turning basin in Presidents Roads and only about 1.6 miles from the harbor entrance at the Southern end of Boston North Channel. This compares to a distance of 3.8 to 4.7 miles to the points of the Charlestown piers and 2.9 miles to East Boston.

Considering a normal port maneuvering speed of 6 to 10 knots in the main ship channel, additional maneuvering time may be nearl- an hour each way. Furthermore, the more intricate movements into the various finger piers, or into the Mystic River basin can be expected to add appreciable pilotage. By comparison, berthing in South Boston is simple and fast and could easily save 2 to 3 hours in total ship time during each port call. While this may appear a small fraction of the total time spent by conventional general cargo carriers, these ships as well as unitized or container carriers are rapidly diminishing their port time, independent of cargo handled. As a result, and considering average time in port by general cargo carriers calling on Boston, the saving may easily be of the order of 30% of total port time. Modern high class cargo and container ships may have a direct hourly cost in excess of $200.00/hour, with resulting large cost as well as schedule saving.

The proposed development is expected to lead to the following benefits:

1. Greater utilization of all equipment and facilities
2. Decrease in operating cost of port facilities
3. Improved security within the port
4. Faster turn around of ships, trucks, railcars, barges and other vehicles serving or being served by the port
5. Shorter average cargo residence time
6. Higher productivity and cargo handling rates
7. Attraction of containerized shipping operation
8. Increase in dry cargo flow
9. Incentive for colocation of seaport related activities
10. Improvements in general truck and rail movement and circulation
11. Proximity to terminals of other modes of transportation
12. Integrated seaport management and control, and resulting low overhead

It appears essential for such a plan to be implemented if the seaport of Boston is to begin its place as a major general cargo port capable and ready to apply the most modern methods.

(III A) 2b) Boston (Jobs, Land)

The consolidation of all general cargo, Ro-ro and some container shipping activities in one South Boston center are expected to result in an increase of general cargo flow through the port by virtue of more efficient ship, facility, and labor use which, in turn, will effect productivity, cargo handling, and ship operating costs. Furthermore, this and the integration with other modes of transportation should make Boston an increasingly attractive port of call and designated shipping port.

The number of jobs in the shipping center itself are projected as follows:

1975	1980	1990	Job Designation
380	350	320	Stevedores
40	40	40	Watchmen
80	90	100	Clerks (Markers, Asst. Clerks)
60	70	80	Drivers (Port Equipment)
20	25	30	Crane Operators (etc)
580	575	570	Total

It will be noted that the employment in the shipping center itself is expected to remain level, yet job distribution will change appreciably.

The proposed development is expected to attract a large number of related activities in the area such as:

1. Container Consolidation Terminals
2. Warehousing
3. Packaging
4. Assembly
5. Related Industries

It is difficult at this time to estimate the resulting number of job opportunities. We suggest container and other unitized cargo consolidation and

distribution facilities will be established outside the shipping center in the South Boston area South and North of Summer Street and South West of L Street.

The total number of potential new job opportunities established in South Boston as the result of the development of the shipping center is estimated as follows:

Activity	1975	1980	1990
Container Consolidation or Distribution Center	150	250	400
Warehousing	150	200	250
Packaging	200	250	350
Light Industry	800	1000	1400
Assembly and General Manufacture	600	900	1300
TOTAL	1900	2600	3700

Most of this employment will be available to newly trained workers and will be offered close to the established residence of the presently underemployed.

The land requirements for the consolidated shipping center consists in addition to the Castle Island land currently owned by the M.P.A., and the land leased now by the M.P.A. from the U.S. Government within the Army Base of:

1. Land (about 12.8 acres) owned by the MBTA north of East First Street between M Street and O Street.
2. Land and buildings within the Army Base to a line 50' north, parallel to the north side, and including building No. 4 of the Army Base,

and extending to an intersection with Harbor Street (about 14 acres).

Commonwealth anf Fish Pier are continued in operation under this plan, the former serving high class scheduled cargo, reefer or passenger cargo combination ships in addition to passenger liners, while the latter is built up as an efficient fish handling, processing, reefer, and packaging center.

Employment on Commonwealth anf Fish Pier is estimated to build up as follows:

Location	Activity	1975	1980	1990
Commonwealth	Stevedores	50	70	100
Commonwealth	Watchmen	24	30	40
Commonwealth	Clerks	10	14	20
Commonwealth	Storekeepers	12	18	24
Commonwealth	Reefermen	8	8	12
Commonwealth	Driver-Operator	6	8	10
Fish Pier	Handlers	80	120	180
Fish Pier	Processor	100	120	160
Fish Pier	Reefermen	10	12	16
Fish Pier	Packagers	60	80	100
Fish Pier	Cleaners	80	100	120
Fish Pier	Clerks	20	25	30
TOTAL	----------	460	585	692

As a result we projcct total employment in the South Boston area in part related activities as:

	1975	1980	1990
Number	2940	3760	4962

Benefits to Boston in land result from the potential functional and use change of various facilities and land which may be redundant from a port need point of view as a consequence of implementing the Consolidated South Boston Shipping Center plan.

M.P.A. facilities which could serve alternate use consist of:

1. Mystic Piers with 150,000 ft.^{2} of Transit Shed and about 7.2 acres of land.
2. Hoosac Pier with 172,500 ft.^{2} of Transit Shed and about 4.8 acres of land
3. East Boston Piers with 441,731 ft.^{2} of Transit Sheds and about 14 acres of land

In addition, about 60 acres of waterfront land (excluding Boston Naval Shipyard) though not owned by the M.P.A., are under its jurisdiction in Boston, Charlestown, South and East Boston. Most of this land is on or adjacent to abandoned piers or non-utilized piers. A firm plan for future requirements and development of the Boston seaport such as the South Boston Shipping Center, if adopted, would release this land and/or facilities for consideration for other use of benefit to the city of Boston.

It should be noted that most of this land, and all of the included redundant piers are on piles and/or fill and their bearing capability is therefore limited and largely dependent on their state of deterioration. The scope of this study does not permit a detailed analysis of the potential use of this land and/or facilities.

3.) Land and Facility Requirements

The consolidated shipping center is planned in South Boston, north and south sides of the Reserved Channel. It also includes the Commonwealth and Fish piers north of Northern Avenue. The center for effective operation requires the acquisition or lease of 14.8 acres of land currently owned (not used) by the MBTA on the south side of Reserved Channel between the Boston Edison and White Fuel Oil Company property.

This facility which has some obsolete structures (including a gantry crane arrangement) is planned for use as an additional container facility and marshalling area.

In addition, acquisition or lease of the remainder of the Boston Army Base (Building No. 4 and adjoining land) is required. It would be appropriate to acquire and transfer title to the whole of the former Boston Army Base in preference to a lease agreement.

These areas and the general arrangement of the Consolidated Shipping Center are shown in Figure 1 of this Section.

The use of the center is phased to assure most effective facility utilization at all times. The ultimate aim is to convert (by 1975) all the facilities on the south side of Reserve Channel into Container Facilities. A total of 5 container cranes will be available, one each, on pier (MBTA), pier 11, pier 13 to 14, pier 16, and pier 17. Figure 2 indicates the arrangement of the container facility, container marshalling, consolidation, control and circulation. The two transit sheds on piers 12 to 15 will serve as container consolidation centers.

A total clear marshalling area of 40 acres is available sufficient for storage of over 2500 containers. The facility is arranged to serve up to four specialized contract or lease container operators in additi on to providing one genral container facility for occasional use or partial container

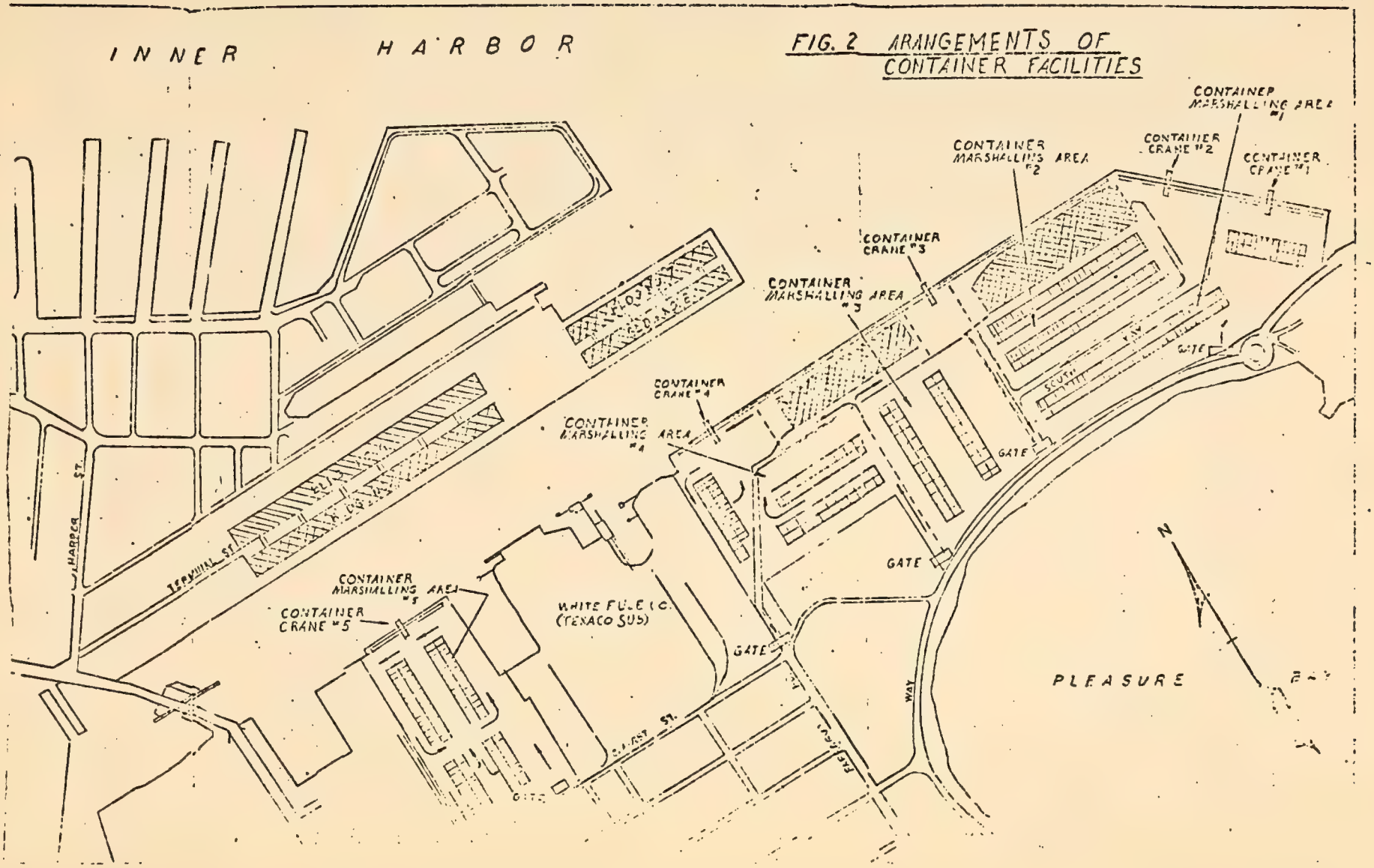


FIG. 2 ARRANGEMENTS OF CONTAINER FACILITIES

loads carried on general cargo or mixed cargo ships.

Obviously, if a lesser number of contract (lease) operators is available, additional facilities would become available for general use.

The equipment requirements for the container facility consist of:

4 container cranes (27.5 tons capacity)(one crane already installed)
20 tractors
4 container straddle carriers
8 container truck checking gates (2 at pier (MBTA), 2 each at 3 main gates)
80 container chassis
10 large fork lifts

In addition, loading platforms for 20 container trucks should be added to the two transit sheds (consolidation buildings) each.

The container facility is arranged for ease of access, regress and circulation and through weaving traffic to and from pierside is strickly separated from internal movements, including movements to and from the marshalling and consolidation areas or facilities.

The container facility is designed to simultaneously handle up to 4 containerships of length 600 to 900 ft. It has a designed throughput capacity of up to 2000 containers per day, and an annual capacity (assuming a 40% average utilization) of up to 3.0 million tons of cargo. Peak flow of containers will be 2000 containers per day in and out and average flow is 1200 containers per day in and out. Assuming a residence or marshalling of 70% maximum peak container flow we require marshalling area for 1400 containers.

In case additional container storage is required, containers will be stacked 2 or 3 high with resulting marshalling capacity increase vastly in excess of any potential requirements.

Recent studies have indicated that container stacking is economic if traded off against additional container movement and land use.

Various details of container port arrangements are indicated in Figure 3.

The Army Base piers will concentrate on handling general cargo, lumber, palletized cargo, and partial container loads. To assure competitiveness it is planned to install 2 to 4 Wirley or Revolver type cranes with a 5 to 10 ton capacity a 60' reach and a 100' hook height. The resulting increase in handling rate will make this investment highly attractive and result in additional income (fees, etc.) to the M.P.A.

In addition the number of tractor-trailers, fork lifts, straddle carriers must be increased to assure efficient movement to and from the aprons of the piers.

The general configuration and use arrangement of this facility is shown in Figure 4. It will be noted that particular emphasis is given to circulation and separation of incoming, and outgoing, and internal flow.

Commonwealth pier will remain a general facility for handling general, and reefer, cargo as well as accommodate mixed cargo/passenger and passenger liners. It is of particular use for vessels with very limited cargo receipt or discharge.

Again, emphasis was given to vehicular flow requirements considering the massive expected flow (on two levels), to the extensive storage spaces. This flow is strickly separated from direct pier and pier to storage area movements.

The fish pier will be rebuilt as an efficient fish handling, processing, freezing, and distribution facility. Though part of the South Boston Shipping Complex it will not participate in cargo handling operations.

A major drawback of the consolidated shipping center is the lack of contiguousness or interfacility access. Although MBTA pier would normally be used as a separate container

facility, better equipment and manpower utilization could be obtained if all container facilities were within the same boundary and connected by effective internal access. This could be provided by either including part of East First Street in the center boundary or by building a pierside extension between the MBTA and Castle Island piers.

Separation of the container shipping and general cargo centers is not considered serious as functional integration of shipping activities is attained by their close location in South Boston, while the desired operational separation is achieved by their respective arrangement.

(III A) 4.) Costs

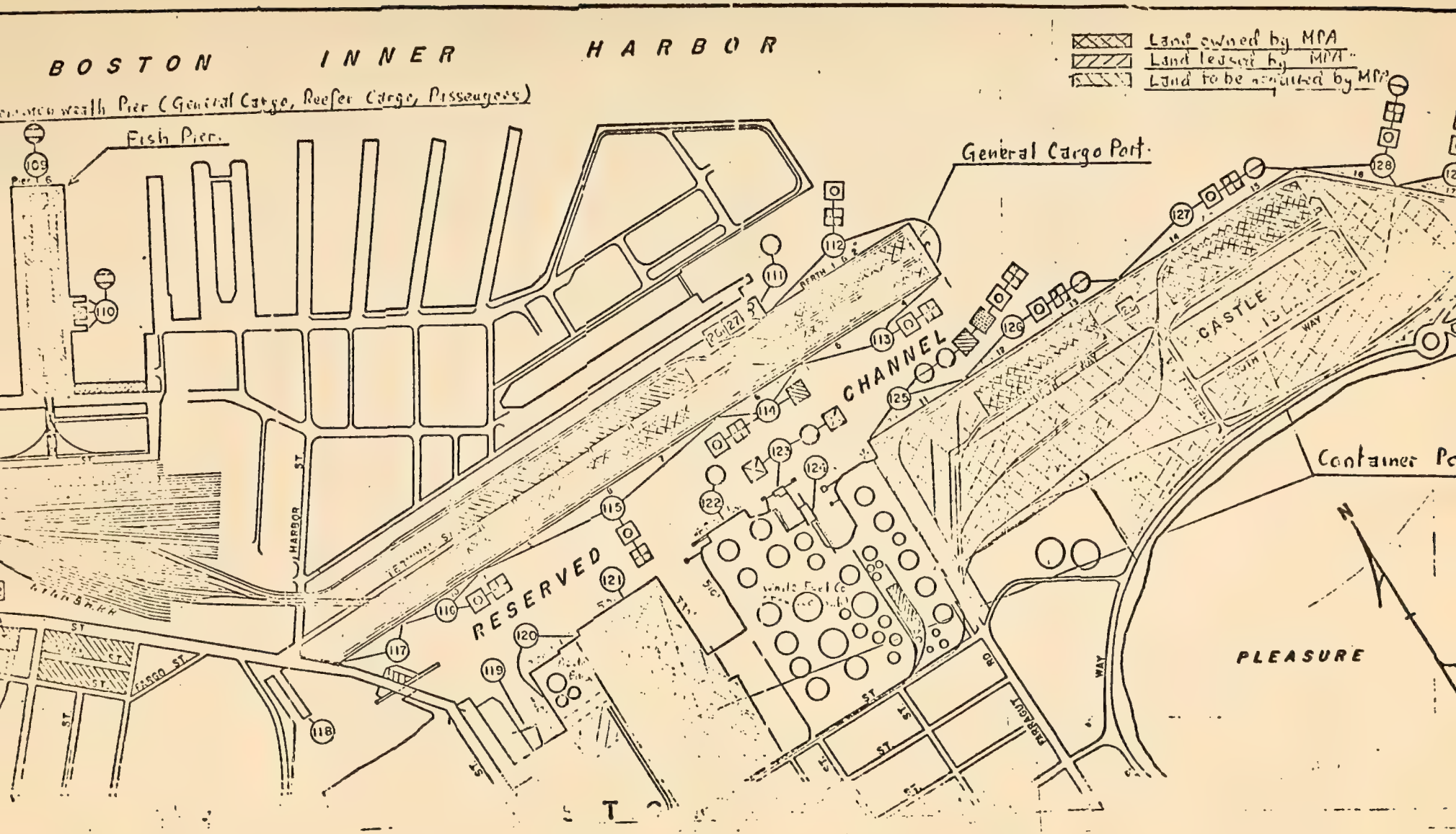
4a) Direct

As additional land requirements consist basically of publicaly owned land acquisition cost is difficult to estimate. The total fair market value of the MBTA pier and all the Boston Army Base property is estimated at $14.0 million assuming recent value determination of federal port facilities in New York and other places. The value of redundant M.P.A. property in Charlestown and East Boston is estimated at $17.0 million assuming local market conditions. Therefore, no added investment in land or building acquisition is expected. Considering that the projected use of the federally owned facilities is directed towards creation of job opportunities, even more beneficial terms can probably be negotiated.

Cost of acquisition of equipment is estimated as follows:

4 Container cranes (27.5 tons) at $1.5 million $2.0 million installed	$ 8.000 million
Crane Rails	0.800 million
30 Tractors at $4,200	0.126 million
4 Container Straddle Carriers at $44,000	0.176 million
8 Container Truck Checking Gates at $30,000	0.240 million
80 Container Chassis at $4,500	0.360 million
10 Large Fork Lift Trucks at $1,500	0.150 million
3,800' Fencing at $40/ft.	0.114 million
4 Revolver Cranes 5/10 ton, 60' reach, 100' hookheight at $250,000 ($300,000 installed)	1.200 million
Crane Rail	0.400 million

Fig 1 General Arrangement of Consolidated Shipping Center



Guard Houses	0.050 million
Road Ways	0.400 million
Paving of Marshalling Areas	0.350 million
TOTAL	$11.746 million

As a result, we estimate that the total direct investment is of the order of $12.0 million. The capital budget requirements would involve investment of about $4.8 million in 1973-1974 for the construction of 2 additional container cranes, all paving roadwork, crane rails, fencing, and some mobile equipment. An additional investment of $3.8 million and $2,918 million are required in 1974 and 1975 respectively to establish the complete facility by 1976.

4b) Indirect

Indirect costs of the Consolidated South Boston Shipping Center are difficult to determine at this time as they depend largely on organizational, operational, and financial arrangements.

M.P.A. may prefer to lease facilities, warehouses as well as piers to terminal operators, shipping lines, or transportation companies. It is increasingly popular to lease complete container terminals to containership operators, who usually are also container owners, consolidation, and operators of trucking fleets. On the other hand, it has become evident that port security, as well as the operation of general facilities, is most effectively and in the public interest assumed by the port authority itself.

The cost of maintaining the facility excluding direct labor and financial costs, but including security, etc. is estimated:

	1975	1980	1990
Annual Cost (indirect)	400,000	500,000	620,000

(III A) 5.) Contraints

5a) Access

Trucks

The main connecting arteries serving the Consolidated South Boston Shipping Center are Summer Street, E. First Street, Northern Avenue, and Viaduct Road. As indicated in Figure 5, truck movements on these access roads should be directionally regulated to assure smooth flow.

Summer Street, Farragut Road, L Street and Grander Way, which provide the main access roadways, all link with William Day Blvd., a divided 6-lane roadway which is linked by an extensive ramp and rotary network to the Southeast Expressway with easy access to the South and North of Boston. City access is provided by Summer Street and Northern Blvd, which also provide the link to the large storage and warehousing complexes between Fort Point and Reserved Channel.

Rail

The Shipping Center is served by the complexes of N.Y.N.H. & HRR yeards 5-7 as well as the Commonwealth and Government Rail marshalling yards. These provide the bulk of rail marshalling of freight cars in the Boston Metropolitan area with direct connection to the long distance truck lines.

All the piers of the center are served by individual spurs and extensive marshalling, switching and reverse route lines. Effective interline connection are provided from this network.

(III A) 5b) Legal Constraints

The implementation of this plan is subject to a number of legal constraints imposed by:

1.) Acquisition of South Boston MBTA Property by the MPA

2.) Lease or Acquisition of Boston Army Base

3.) Certain Zoning Requirements in South Boston

4.) Easements For Accesses to Various Elements of the Shipping Center

A detailed set of legal abstracts pertaining to the above problems are contained in the attachment.

1. Can the B.R.A. acquire by eminent domain, property which is owned by the M.B.T.A. It is assumed that the property was acquired by the predecessor of the M.B.T.A. for a public purpose.

The B.R.A. has the power to acquire property by emminent domain, which property is reasonably required to carry out the purposes of the law under which it is established. In our case, since the B.R.A. would wish to acquire the property for the use of the M.P.A., such acquisition is not authorized.

It is not clear whether, even if the B.R.A. wished to take the property for the purpose of clearing decadent areas, it could acquire the property in question without additional legislative authority. In general, land which was appropriated for a public

use cannot be appropriated for another use unless the legislature has authorized the change. In a 1960 opinion, the Attorney General of Massachusetts wrote to the State Housing Board that even though a Housing Authority (the B.R.A. is a Housing Authority) had no right to take railroad property by emminent domain, it was permitted to do so where such taking did not seriously interfere with the enjoyment of the railroad corporation of which it is franchised. This opinion was not tested in court, and it it not clear whether it is applicable to our case.

2. Can the B.R.A. acquire by emminent domain, piers which are used, though infrequently, as port facilities. It is assumed that these piers are owned by the M.P.A. and were acquired for the purpose of operating the port. It is also assumed that such properties are blighted and decadent areas as defined by law. Under these circumstances, we think that the B.R.A. may not acquire the piers in question. In view of the rule cited above, the general power of the B.R.A. to take property by emminent domain is not sufficiently explicit to permit the taking of these piers. Note also that the authority to determine whether or not the property is necessary

for the operation of the port is vested in the M.P.A.

3. May the M.P.A. acquire by emminent domain the M.B.T.A. property.

The position of the M.P.A. is slightly different from that of the B.R.A. First, it would acquire property needed for the operation of the port, a function which is within the M.P.A.'s duties. Second, the M.P.A. is granted wider power than the B.R.A. to acquire public land by emminent domain. Yet, even such power may not be sufficiently explicit. In our case, however, the opinion of the Attorney General may be applicable. If the actual tracks on the property are retained undisturbed, the rest of the land might be taken for the use as port facilities. This answer is not free from doubt. Neither is it clear whether the M.P.A. would be obliged to pay the M.B.T.A. damages for the property. An argument could be made for the proposition that there is no such obligation. It is not a strong argument. It might serve the negotiations over the amount of damages, but not as a basis for complete freedom from payment by the M.P.A.

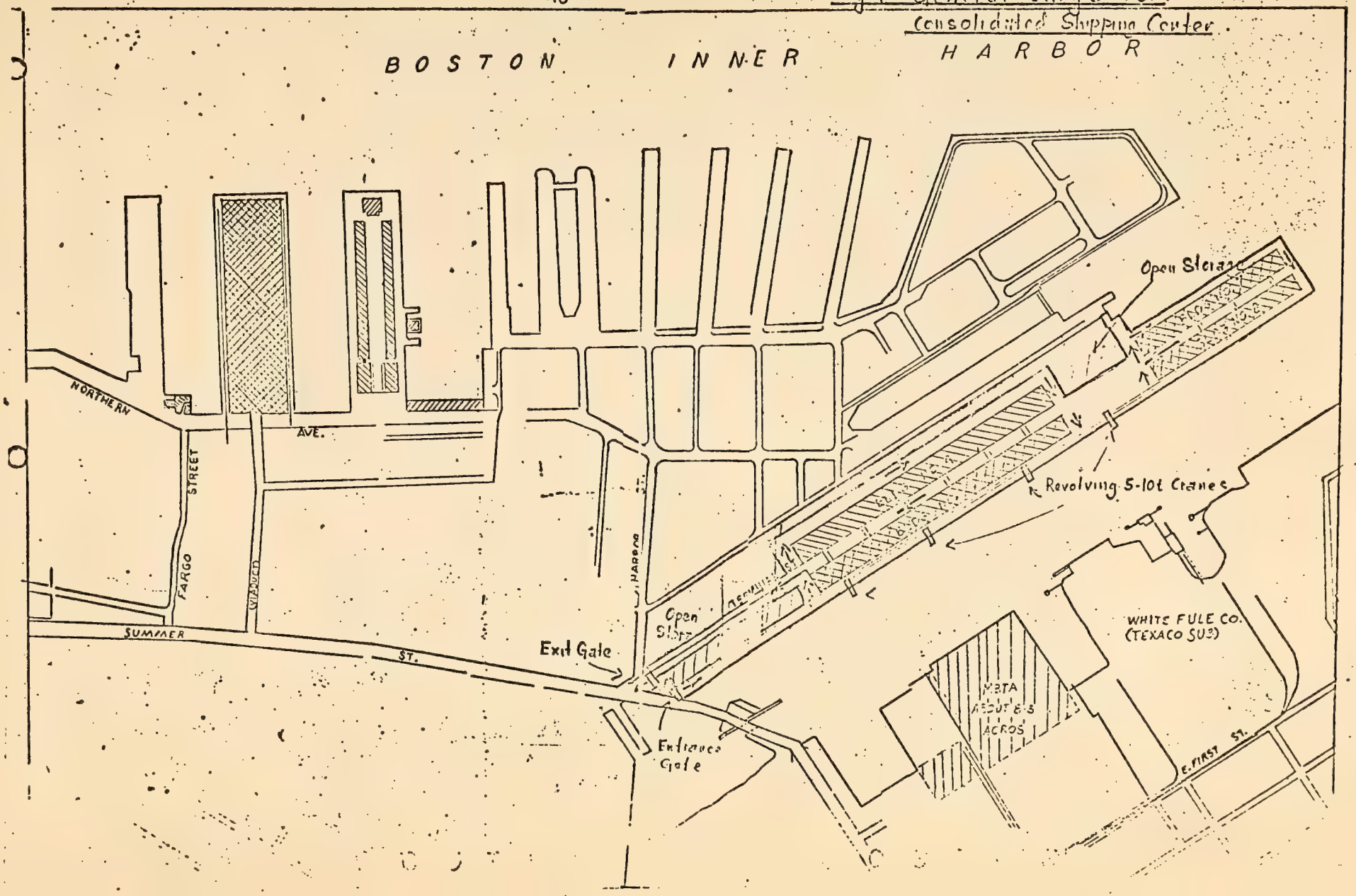
It is suggested that before any steps be taken, an opinion of the Attorney General be requested.

(III A) 5c) U.S. Navy Shipyard in Charlestown and South Boston Annex

Although the U.S. Navy developed plans for a move and consolidation of shipyard activities in the South Boston Annex, these plans for a move and consolidation were changed because of the large costs of such a move. Since 1971, when these plans were finally abolished, detailed plans for improvements of the Charlestown shipyard were formulated. Some of these, such as rebuilding of some of the graving docks, have since been accomplished. The recent (April 10, 1973) announcement by the DOD that the Charlestown shipyard would be shut down, though not final at this stage, will obviously have a major effect on Boston Navy Shipyard requirements and plans.

Even if Charlestown Shipyard remains open, the justification and cost of maintaining the South Annex is tenuous. The annex is presently used solely as a docking facility for large ships such as aircraft carriers, etc. and for berthing of ships (generally when out of commission). This requirement is and will continue to be reduced. It is therefore expected that parts or all of the South Annex may be declared surplus property before 1975. (Major components such as the Army Base have recently been declared surplus.) As the U.S. Navy may be interested in only maintaining availability of the large graving dock, a plan for transfer of the property to commercial use with a proviso that the graving dock will be maintained as such and in working condition, and that the U.S. Navy maintains rights to priority use of the facility, may be acceptable to the Navy and the DOD. Considering the intrinsic value of the property, and past decisions by the DOD and the GAO, it is imperative for the City to develop an imaginative, realistic, and effective program for the property as a proposal to the

Fig.4 General Cargo Port
Consolidated Shipping Center



Federal authorities. Many lessons can be learned from the recent conversion of the New York Navy Shipyard to commercial use.

(III A) 5d) Mystic River Activities

The activities in the Mystic River basin consist essentially of container terminal and bulk handling operations, many of which are now served by barges instead of self propelled ships. In addition one general cargo berth is maintained by Wiggins Terminals. The Schiavone M.P.A. property just West of M. J. Tobin Bridge on the Charlestown side of the river has a 1100' berthing length with 35' deep water and used to serve for the handling of steel receipts and scrap iron exports. All the other activities are performed in specialized proprietory facilities.

The major users of Mystic River waterborne movements are shown in Figure 5 and listed in the accompanying table.

The only Mystic River activities expected to be affected by the development of the South Boston Consolidated Shipping Center are the Wiggins and M.P.A. container terminal activities. Wiggins Terminal provides extensive railhead and flat land areas and is located at the very center of the Metropolitan area. It could provide an effective industrial tract of land. Industry developed could be complemented by industrial warehousing activities located on the M.P.A. Mystic pier No. 1.

Owner	Location	Use
Humble Oil	Everett	Receipt of Oil prod Loading of Oil barg
Marquette Cement Co.	Everett	Receipt of Bulk Cem
Prolerized Sulphur Warf	Everett	Receipt of Liquid Sulphur
Distrigas LNG	Everett	LNG receipt & Storag
Prolerized Metal Warf	Everett	Shipment of Scrap Metal
Union Carbide	Everett	Receipt of Chemicals
Boston Edison	Everett	Receipt of Fuel
Monsanto	Everett	Receipt of Liquid Sulphur
American Sugar	Charlestown	Receipt of Raw sugar
Revere Sugar	Charlestown	Receipt of Raw sugar
Atlantic Cement	Charlestown	Bulk Cement
Wiggin	Charlestown	General Cargo
Schiavone MPA	Charlestown	Steel and Scrap iron
US Gypsum	Charlestown	Gypsum Rock
Schiavone MPA	Charlestown	Container Terminal

III.A 6) Implementation

a.) Basic Policy Decisions

The implementation of the Consolidated South Boston Shipping Center Plan, hinges obviously on its acceptance by the MPA. As usual, among public bodies, such acceptance hinges on a quid pro quo in addition to:

1) Agreement with the basic premises and conclusions of the plan by the MPA
2) Political viability and acceptance on a city and State level
3) Release of the Boston Army Base for alternate use by the Dept. of the Army, and effective representation at the Federal level, to prevent incorporation of some or all the facility in the relocated Naval Shipyard.
4) Effective lease or sale agreement for transfer of Boston Army Base.
5) Agreement by MBTA for sale of its redundant South Boston property
6) Availability of capital for improvements, and capital investment in South Boston. This capital could easily be generated by the sale of some of Charlestown and/or East Boston MPA facilities which should exceed the value of the MBTA property by a substantial margin.

Basically, the plan poses the alternative of continued use of proliferations of illequipped underutilized facilities spread of tens of miles of waterfront, versus consolidation of all seaport activities in South Boston with a meaningful improvement in facilities equipped to attract future cargo, particularly containerized and other high value cargo, by its efficiency, speed of throughput, and control in handling. The port of Boston must introduce a drastic change in its approach to regain the confidence of shipper and operators and it has to be recognized, that this cannot be achieved by a diversity of make shift changes. Only a departure from the past and a meaningful implementation of a long range plan, such as here described, will convince the customers of the seaport that the city and state mean business when they refer to the revitalization of Boston as a World Port.

Most of the above considerations and requirements seem feasible on the basis of public pronouncements. The major question is really how to convince the MPA to give up major waterfront properties in Charlestown and East Boston for development of alternate non-seaport use. However, inefficient for port us, these facilities are partially leased to Terminal operators, while other are leased as warehouses space. They, therefore, produce revenue which has an impace on the seaport profits.

It should be noted that the majority of seaport revenues are not derived from direct charges to seaport users but from leases. As a result the MPA may have to be provided with interim revenue to assure the profitability of the seaport until the consolidated shipping center becomes profitable. Details of such arrangements are beyond the scope of this study.

The main question is really how to make it politically and economically attractive to the MPA to buy the plan .

The political trade-offs may involve MPA participation or responsibility for the redevelopment of former seaport waterfront properties similar to the involvement of the authority in the Transportation Center Complex. The economic aspects could be introduced by long range commitments by large containership operators for use of the shipping centers facilities. These commitments obviously have to be written in such a form to assure irrevocable obligations for the utlization of established facilities (see Sea-Land agreement with MPA).

A major factor in acceptance and implementation remains the attitude of port labor. It appears, that local labor leaders have recenlty come around to be more amenable to compromise as they as well recognize the urgency for effective action to save the seaport from total collapse in the general and container cargo business, which is the only really remunerative activity as far as the MPA and seaport labor is concerned.

b.) Roles of Responsible Agencies

The roles of agencies with responsibility in implementing the South Boston Consolidated Shipping Center plan are:

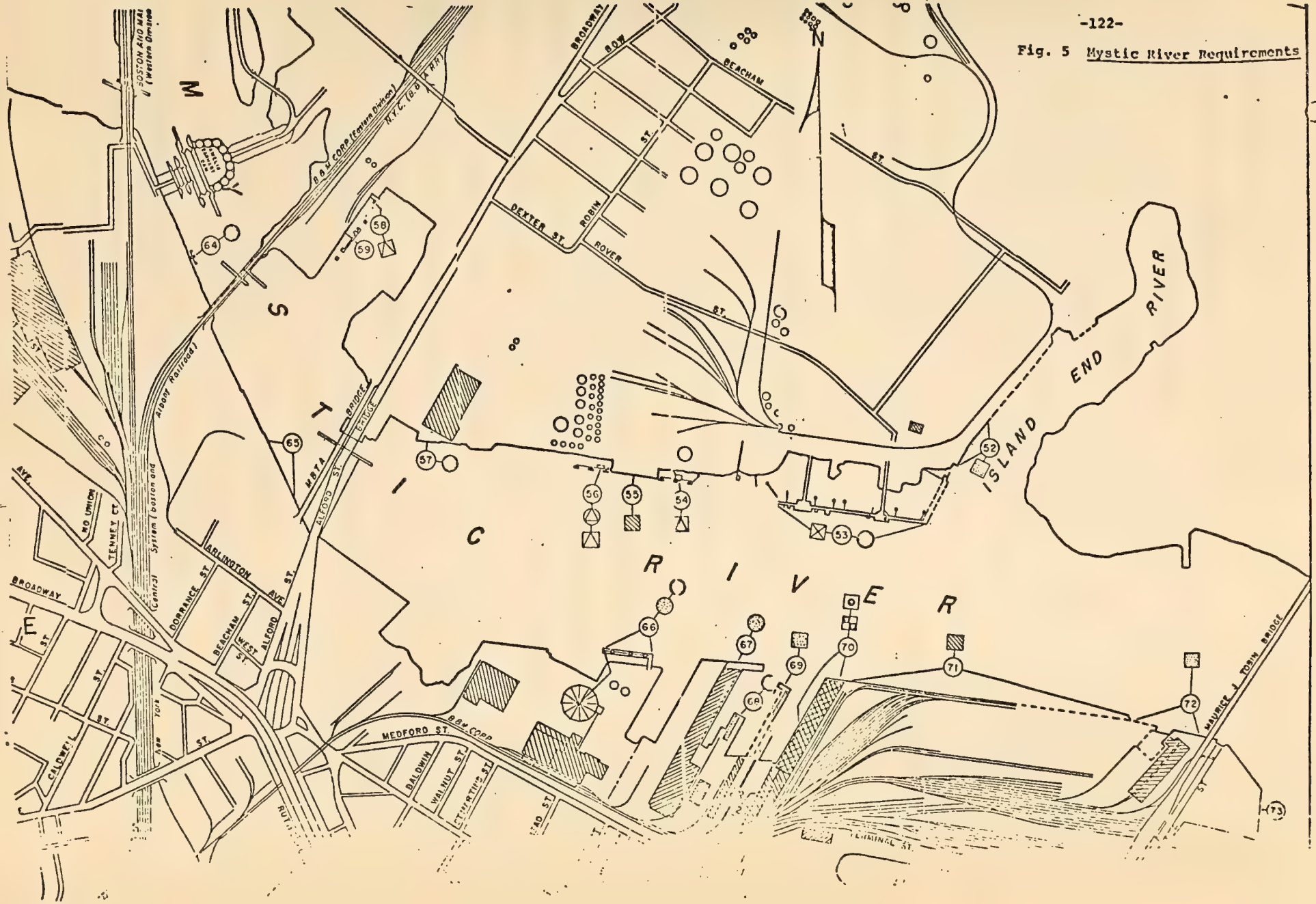
1) Massachusetts Port Authority. Owner and operator of Shipping center
2) Mass. Bay Transportation Authority. Owner of land in South Boston required for shipping center
3) Department of Defense-Dept. of the Army. Owner of the Boston Army Base which is required as an integral part of the shipping center
4) BRA. Will have to develop and implement certain new zoning requirements and arrange for easements for accesses to various elements of the shipping center.

In addition to the above public body organizations such as:

a) Seaport Labor Unions
b) Boston Shipping Association
c) Boston Chamber of Commerce.

and various other community, and public, bodies will have to be involved to assure effective implementation.

Fig. 5 Mystic River Requirements



B.) Oil Pipelines

1.) Purpose and Description of Facility

The demand for petroleum products in the Boston area exceeds 20,000,000 tons per year and continues to rise. This will place an increased economic pressure on the oil companies to expand and to modernize the products distribution system for the area. If the port of Boston wishes to remain the center of this system, it must actively participate in expanding the capabilities of the harbor to accommodate new distribution patterns and new distribution methods.

The primary source of petroleum products for New England is the Philadelphia refinery complex. The products are transported along the Eastern seaboard in small tankers of 17,000 to 35,700 DWT. From Boston the inland distribution is handled by rail and truck. There are strong indications that Portland, New Bedford, or other ports will attempt to establish modern deep water terminals for regional oil landings. With continuous growth it is doubtful that the 1980 demand can be met through existing facilities, if a new deep draft terminal is not established. The purpose of a Boston Oil Terminal is to insure that the bulk of regional oil landings enters and is distributed through Boston. The proposed facility consists of a marginal improvement of existing facilities by providing a 45-50' draft terminal which permits doubling the size of products tankers used in the service and is consistent with the capability of <u>all</u> U.S. petroleum product loading berths. It would therefore effectively serve all

U. S. product shipments to the region and by consolidating the receiving point introduce major savings.

This recommendation complements proposals for offshore deep water terminals such as those made by the MPA (which are currently under intensive engineering study). These would primarily serve foreign import crude and products which are usually more economically carried in very large tankers.

The facility consists of a device for off-loading tankers (either a mono-moor or a fixed docking platform), a pumping station and surge tank, a manifold for directing the products to their proper storage area, and the piping which connects these various elements.

The proposed Boston harbor oil terminal off-loading device has been tentatively located in the lee of Deer Island. The primary candidates for off-loading facilities are as stated above the single point mono-moor and the fixed docking platform. The mono-moor system consists of a large surface buoy anchored in the center of a dredged basin in which the tanker is free to take its desired heading. A system of cables and constant tension winches hold the tanker to the buoy while a system of slack rubber hoses connect the tanker with the pipeline flange at the base of the mono-moor. The fixed platform allows the tanker to maintain a conventional berth while off-loading its cargo. The advantages of the mono-moor are low initial investment and high flexibility for modernization. The advantages of the fixed platform are a reduction in yearly operating costs due to decreased dredging

and a requirement for less facility acreage. We recommend the mono-moor system because of its flexibility and relative potential for technical improvements. In this protected anchorage, a mono-moor can be conveniently relocated in case of expansion of any of the runways at Logan International Airport or increased tanker berthing requirements. Should this project be funded as an autonomous authority, the lower initial investment lessens risks associated with a major replacement. Similarly, should increased facility capacity be required an additional mono-moor may be added to the system without another major capital investment. Also, pollution prevention and clean-up devices can be readily employed.

2) Benefits

The proposed Boston Oil Terminals should be capable of handling tankers of from 50,000 to 100,000 DWT. The channel and area to be used in turning the vessels currently have a depth of 40 feet capable of handling tankers of 50,000 DWT. Dredging of the channel area to 45 feet would enable off-loading of 70,000 DWT vessels while dredging to 55 feet would enable off-loading of 100,000 DWT tankers. The technical benefits of the proposed scheme result from the flexibility of the monomoor system. Until 1975 we do not expect products tankers to exceed 50,000 tons due to the draft limitations at the Philadelphia refinery complex. As the transport systems matures decisions can be made between increased off-loading mono-moor or increased off-loading mono-moors or increased dredging for larger 100,000 DWT tankers. This flexibility is very important.

The economic benefits resulting from the throughput of 30,000,000 tons per year result in increased revenue for port charges and increased local employment. Boston currently has sufficient storage capacity for the foreseeable future. Although petroleum storage and transfer are not labor intensive, the distribution by rail and by truck is. This level of employment is typically important to inner city inhabitants. The attractiveness to the oil companies stems from common carrier advantages shown in the cost figures and lower tanker freight costs to the Boston area. With the information at hand, we have only been able to estimate the advantage to the oil companies in curtailing operation of the

small wharfs in Chelsea, Mystic, and main waterfront areas. It appears that maintenance and operating costs for such aging facilities should be approximately $0.05/BBL. The proposed Boston Oil Terminal should offer advantages to all the main distributors since costs for maintaining the Terminal can be discounted over all the petroleum products entering the harbor. This results in cost of $0.01/BBL. Coupled with the savings in larger tanker transport, this should result in a net savings of $0.09/BBL or $12,000,000 per year to the oil companies.

In summary, we believe that the proposed Boston Oil Terminal should be able to insure additional revenue to the Massachusetts Port Authority. The incentive to industry is a projected net savings of $12,000,000 per year due to increased efficiency.

3.) Requirements

There are three major requirements. One is for land on which to locate the pumping station and manifold, two is to obtain the right of way for the pipe and three is to locate an area in the harbor to position the mono-moor in and use as a turning basin.

This area between the airport and the Charles River is for the most part publicly owned and it should not be difficult to locate one or two acres upon which to locate the facility.

Again, because much of the land is publicly owned, it should be fairly easy to obtain right of way for the pipe to the station and from there to the Chelsea storage areas. Right of way for pipe to the Mystic area and the main waterfront will not be so easily obtained. There are, however, several possibilities. One is to run the pipe on MBTA land such as is available for the subway. The other is to run the pipe beneath the city streets. A precedent has recently been set for this type of action as is indicated by the attached communications between the City of Boston and certain oil companies. The consulting engineering firm of Fay, Spofford and Thorndike has acted as an independent engineering group for several of the primary aviation fuel suppliers to study common carrier requirements. This cooperation by the oil companies indicates willingness on their part to consider combined service facilities. The City of Boston Public Improvement Commission has been an effective review group for completed proposed plans, but this organization has chosen not to initiate new shared facilities. At present, existing oil storage

facilities in the Chelsea River area are duplicated by the many fuel oil companies. We recommend that a central planning authority should seek to encourage consolidation of storage areas. This should be attractive to the companies because it takes advantage of the economies of scale. It should be attractive to city government since it would greatly enhance effective land usage in the heart of the metropolitan complex.

The mono-moor has been tentatively located in the eastern end of the President Roads anchorage area. The circle for the Mono-moor and the only area which would require dredging if the decision is made to go to dredging is approximately 83.3 acres.

The entire anchorage which has an area of about 288.1 acres will be used for turning once the tanker has off-loaded.

to allow for fitting losses, etc., and provide a margin for error. Also in this range (300 to 600 h.p.) the cost of the additional horsepower is quite low.

The cost for the various items are as follows:

	Single-Point Mooring	$2,500,000
(or)	Fixed Pier	$6,000,000
	Pumping Station and Surge Tank	$ 400,000
	Underwater Pipe, 5 miles at $520,000/mi	$2,600,000
	Overland Pipe, 6.2 miles at $300,000/mi (.6 miles from shore to manifold and 5.6 miles from the manifold to the various storage areas, all storage areas being serviced).	$1,840,000
	Dredging (for mono-moor)	
	45' 1,150,000 cubic yards @ $1.00/yd^3	$1,150,000
	55' 3,450,000 cubic yards @ $1.00/yd^3	$3,450,000
	Dredging (for fixed pier)	
	45' 287,550 cubic yards @ $1.00/yd^3	$ 287,550
	55' 862,500 cubic yards @ $1.00/yd^3	$ 862,500

The initial investment for the six possible configurations are shown below:

	40' depth	45' depth	55' depth
Mono-moor	$ 6,940,000	$ 8,090,000	$10,390,000
Fixed pier	$10,440,000	$11,590,000	$13,890,000

The dollars per barrel cost of operating this facility will depend upon how many of the storage areas are serviced and the size of the throughput: Throughput is a function of the number

4.) Costs

The following are the basic cost items:

1 Single-point mooring (or fixed pier);

2 Pumping station and surge tank;

3 Underwater piping;

4 Overland piping;

5 Dredging.

The cost of the mono-moor will be the same whether it is for a 50,000 or 95,000 DWT tanker. It will probably cost about $2,500,000.

All other costs are directly or indirectly related to tanker size. If one wants to off-load tankers with drafts in excess of 36 feet, dredging will be required.

The off-load rate of the tanker using the facility will determine the flow rate of the products through the pipe. The average 70,000 DWT tanker off-loads about 3,000 tons per hour while the average 95,000 DWT tanker off-loads about 3,500 tons per hour.

Figure 2 is a plot of the frictional losses versus the pipe diameter for the off-load rates of average 75,000 and 95,000 DWT tankers. The losses are for a pipe length of five miles. Considering the flow rates, future growth in demand, cost of various pipe with a 600 h.p. pumping station is the optimum configuration. The chosen horsepower is better than twice the frictional losses in the pipe for the higher flow rate; this is

of storage areas the systems supplies and the volume of business.

There are three storage areas which may be serviced: Chelsea, Mystic and the main waterfront. We have assumed that Chelsea will always be serviced. This leaves us with four possible configurations: Chelsea alone, Chelsea plus the main waterfront, Chelsea plus the Mystic area and all three areas. Servicing the Mystic area adds two miles of pipe while servicing the main waterfront adds oen mile of pipe to the basic configuration.

Assuming that 10% of the initial investment will cover yearly amortization, interest, operation and maintenance costs, the following is a table of yearly costs for various conditions using a mono-moor as the off-loading device:

	Chelsea	Chelsea & Mystic	Chelsea, Mystic & Main Waterfront	Chelsea & Main Waterfro...
% of total which may be handled	50%	70%	95%	75%
Size of Ship system is able to handle:				
50,000 DWT	$454,000	$494,000	$514,000	$474,000
70,000 DWT	$511,500	$551,500	$571,500	$531,500
100,000 DWT	$626,500	$666,500	$686,500	$646,500

If the entire throughput to Boston is 20,000,000 tons per year and the various configurations can handle the percentages indicated above, the table below is the cost per ton moved assuming that each configuration is handling 100% and 50% of its capability:

	Chelsea	Chelsea & Mystic	Chelsea, Mystic & Main Waterfront	Chelsea & Main Waterfro...
		[Configurations handling 100% of capability]		
50,000 DWT	$.045	$.035	$.027	$.032
70,000 DWT	$.051	$.040	$.030	$.037
100,000 DWT	$.062	$.048	$.036	$.043

	Chelsea	Chelsea & Mystic	Chelsea, Mystic & Main Waterfront	Chelsea & Main Waterfr
	[Configurations handling 50% of its capability			
50,000 DWT	.090	.070	.054	.064
70,000 DWT	.102	.080	.060	.074
100,000 DWT	.124	.096	.072	.086

The highest cost incurred on the preceeding tbale is for 100,000 DWT tankers using the Chelsea only distribution system at 50% of its capability. If the cost of the system as we see it doubled the dollars per barrel for moving the product would still be only $.035. From Figure 3, it can be seen that switching from a 30,000 DWT tanker to a 100,000 DWT tanker on the Philadelphia-Boston run will save $.10 per barrel, considerably more than the cost incurred in our system.

Pipe Diameter vs. Frictional Losses

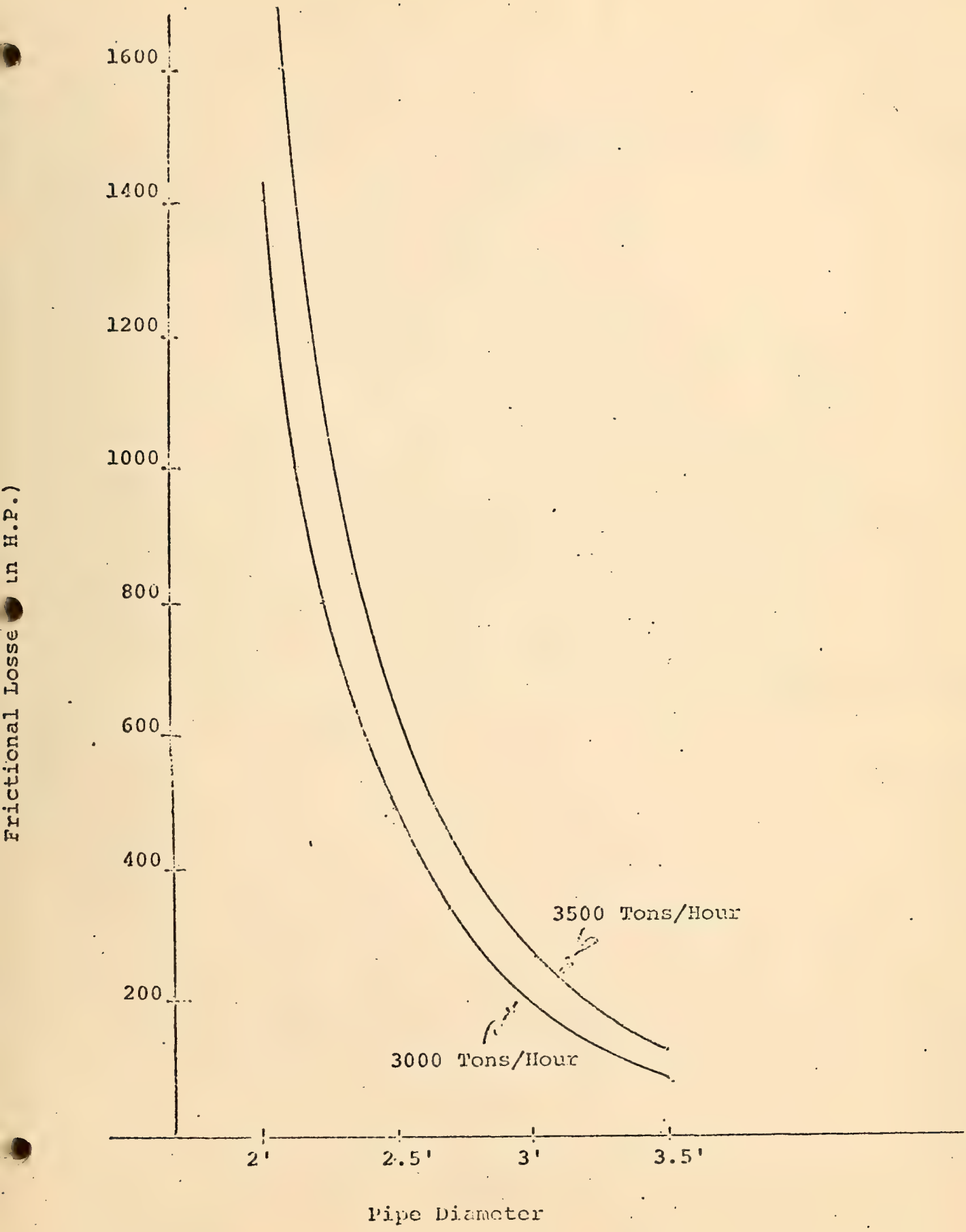


FIGURE 2

Transportation Costs
Philadelphia-Boston

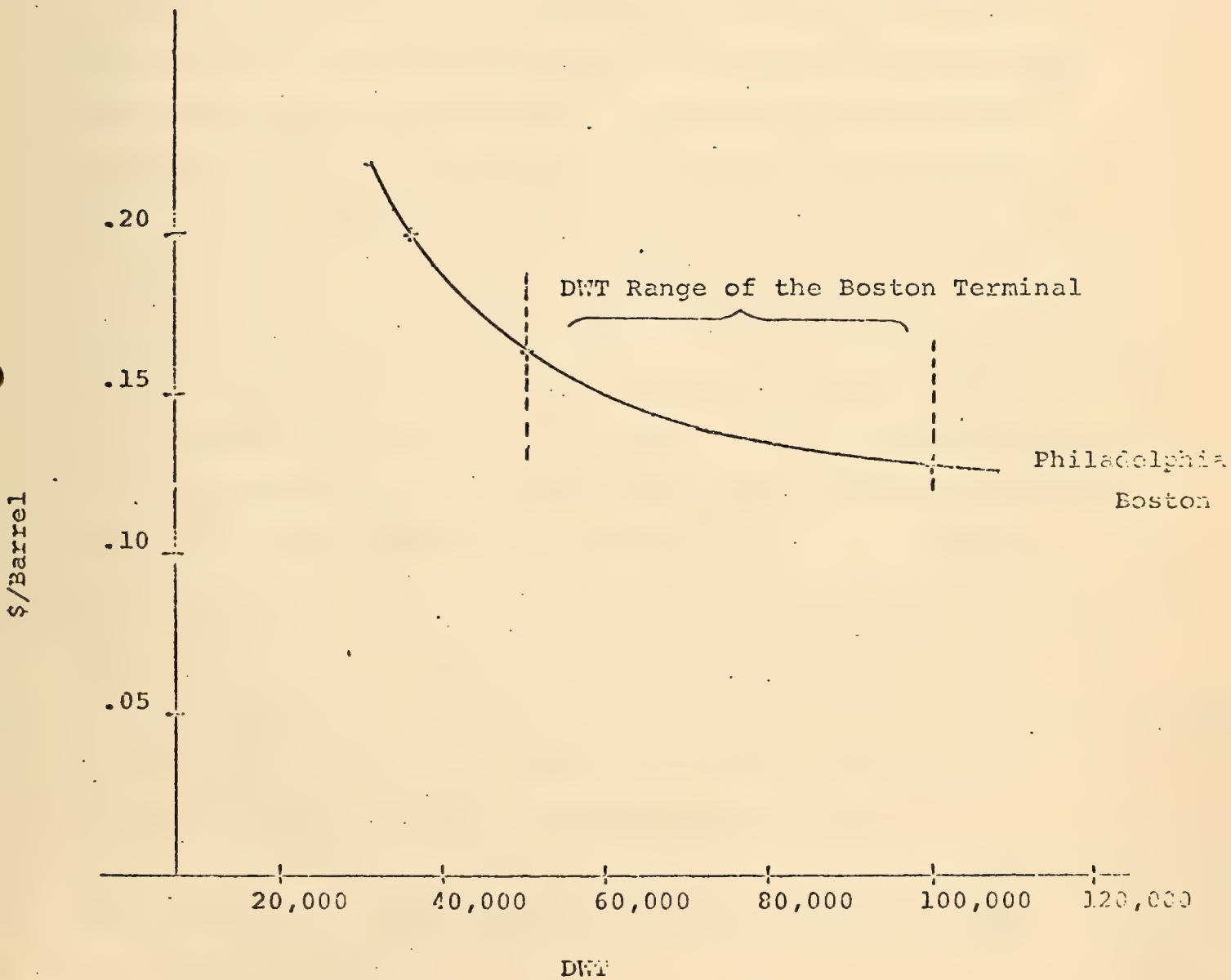


Figure 3.

5.) Constraints

a) Right of way for the on shore pipelines is the major problem area. This results from the highly political nature of East Boston. Port Authority relations. East Boston residents have strongly opposed further encroachment by the Port Authority. Although the pipeline will be only a temporary inconvenience, there will probably be automatic opposition to any project supported by the Port Authority. As previously mentioned, approval for right of way must be obtained from a variety of public groups. Should any group deny right of way, complicated routings to the storage area could double costs. The currently proposed airation fuel pipeline to Logan has been severly hampered by bureacracy. There exists no public authority that has chosen to aid in chosing right of way. As a result, the oil companies have been forced to prepare repeatedly modified proposals to the Public Improvement Commission, the Port Authority, and the City Council. There has been a reluctance of one public agency in releasing land to another. This indicates that some governmental group, such as the Public Improvement Agency, should become the expeditor of right of way in the proposed scheme.

This group can assume a non-partisan role that would lessen political problems.

b) Ninety-five percent of the existing storage facilities are located on the Chelsea River, the Mystic River and the main waterfront. This represents a cummulative storage of nearly 14,000,000 barrels. A break down of this storage is given in Figure 4. Those storage tanks which would be serviced by the proposed pipeline are listed under Public Works Reference Numbers 30-68. These storage areas have been shown in Figure 1. Nearly all the storage areas are capable of absorbing the cargo of a 50,000 DWT tanker. Five of the storage areas are capable of handling a 100,000 DWT tanker. We believe that sufficient storage exists to handle this throughput.

c) Possible relocation of New England terminal facilities (Machiasport, Bedford).

The percent breakup of petroleum products in New England is distributed among the states as follows:

New Hampshire	5.7%
Maine	9.6%
Massachusetts	52.2%
Vermont	3.6%
Rhode Island	6.9%
Connecticut	22.0%

Massachusetts uses a little better than one-half the entire New England consumption of oil products. Of the 52.2% consumed in the state about 76% of this is used right in the Boston area. In other words, 40% of the petroleum products coming into New England go to the Boston area. With such a large demand for oil products in the Boston area it just does not make sense to let the tanker handling facilities of Boston become antiquated forcing the demand to be met by small inefficient tankers or pipelines from Machiasport or Bedford.

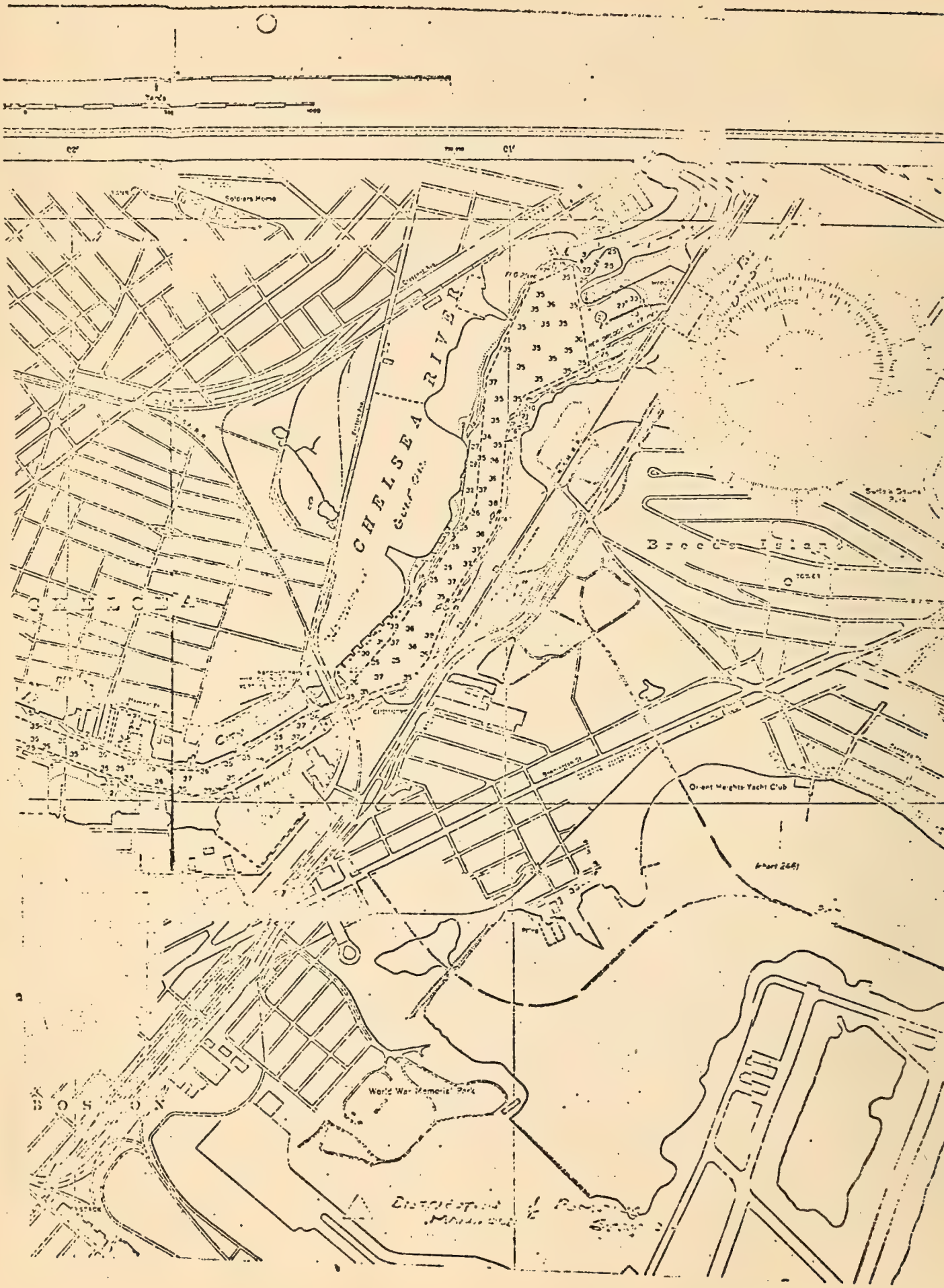
An important consideration is that about one third of the petroleum receipt in Boston are foreign imports (primarily heating oil). This factor and the potential for a change in the oil import quota program currently under review by a Presidential Task Force requires consideration of foreign tanker requirements instead of the limited needs of U.S. flag coastal tankers. The economy of size of tankers in foreign trade is even more pronounced because of the long distances involved. As the number of foreign tankers supplying the region increases, the N pressure for a deep water terminal will increase. Even now, the landed cost of foreign heating oils, could be decreased by about 6 cent/barrel by the use of larger foreign tankers.

6.) Implementation

A. Basic Policy Decisions

Basic policy decisions must be made concerning the future disposition of the oil-handling facilities in metropolitan Boston. Perhaps the most fundamental questions are centered about land usage. A central planning authority must decide the advisability of maintaining large petroleum storage areas in the center of the city. If there are not preferred uses for the storage areas, the city must seek to promote joint action by the oil companies. It must be absolutely clear that the city must take an active, participating role, not a passive, regulatory role. The financial structure of a shared Boston Oil Terminal must be delineated so that the net gains to the various companies become more obvious. Changes for use of the facility might make it a profitable private venture requiring only an active third party role for government. A mutual decision by all parties concerned should define the status as an autonomous authority or a combine corporate venture. Government's stand on this question depends on what its priorities are. On the one hand there is the revenue which the system will supply, if the land upon which the tanks rest would not bring the government more revenue by being used in a different manner then the system will be installed. If, however, the appearance of those sections of Boston that have oil storage is considered more important than revenue, perhaps the mono-moor would not be installed so as to bring about the eventual disbandment of the storage facilities.

Once the decision to install a mono-moor pipeline facility is made the next decision is who will own, operate and determine the rates to be applied. The facility might be privately owned and


CHELSEA RIVER
Orient Heights Yacht Club
BOSTON
World War Memorial Park

operated with the Massachusetts Port Authority determining rates or it may be publicly owned and privately operated. In any case, there are several alternatives, each with its own advantages and disadvantages. At the same time, the owner, operator question is being answered a decision must also be reached as to the financing of the project. Again, there are a few obvious choices such as public, private or autonomous financing.

B. Role of Responsible Agencies

The Public Improvement Commission and the Port Authority should perform the primary tasks. The Port Authority should serve as the main public arbitrator. It should present the advantages and disadvantages to the oil companies. We are advocating a highly participating role on both the administrative and fiscal levels. The Public Improvement Commission should expedite the legal and political problems associated with the right-of-ways and on-shore facilities. It appears that the facility may also be constructed and operated by the MPA who will change a fair and reasonable rate based on a declining scale for long range retainer contract users and a non-preferential use and rate schedule for occasional users. Our study indicates that the approach may not only be profitable to users and the MPA in comparison with existing revenues and cost but may be the only method whereby the major part of the petroleum product flow to the region is maintained in the Boston seaport.

As a result, it may actually involve the retention of MPA revenues of tens of million of additional dollars otherwise lost to the authority, because of relocation of tanker off-loading to facilities capable of handling these larger more economic tankers. In addition as pointed out earlier relocation of petroleum product distribution may effect employment and the tax base of the city.

C. Timing

In order to fully utilize the mono-moor system the petroleum products must be entering the harbor in at least 50,000 DWT tankers. The oil companies will not be willing to just suddenly abandon their small tankers which are presently operating in the harbor but will want to replace them as they become obsolete. Part of the discussions with the oil companies to determine their feelings about the proposed system, whoulc determine when they plan on replacing their tankers and point out the advantages to them in utilizing our system if they go to 50,000 or greater DWT tankers. A review of the ships actually used in this trade indicates, that about 80% of these vessels are 20 years or older and therefore ready for scrapping within the next few years. No new construction order for 15-35,000 ton tankers for coastal trade are presently on order. (The small tankers on order or under construction at Ingalls, Sun etc. Shipyards are for MSTS use). On the other hand about 15 product tankers in sizes of 50-120,000 ton are on order and will be delivered during 1971-1974. It is these ships which will replace obsolete small ships. The timing should therefore coincide with their delivery date.

APPENDIX A

CARGO FLOW STATISTICS FOR THE

PORT OF BOSTON

1966 - 1971

SECTION 1

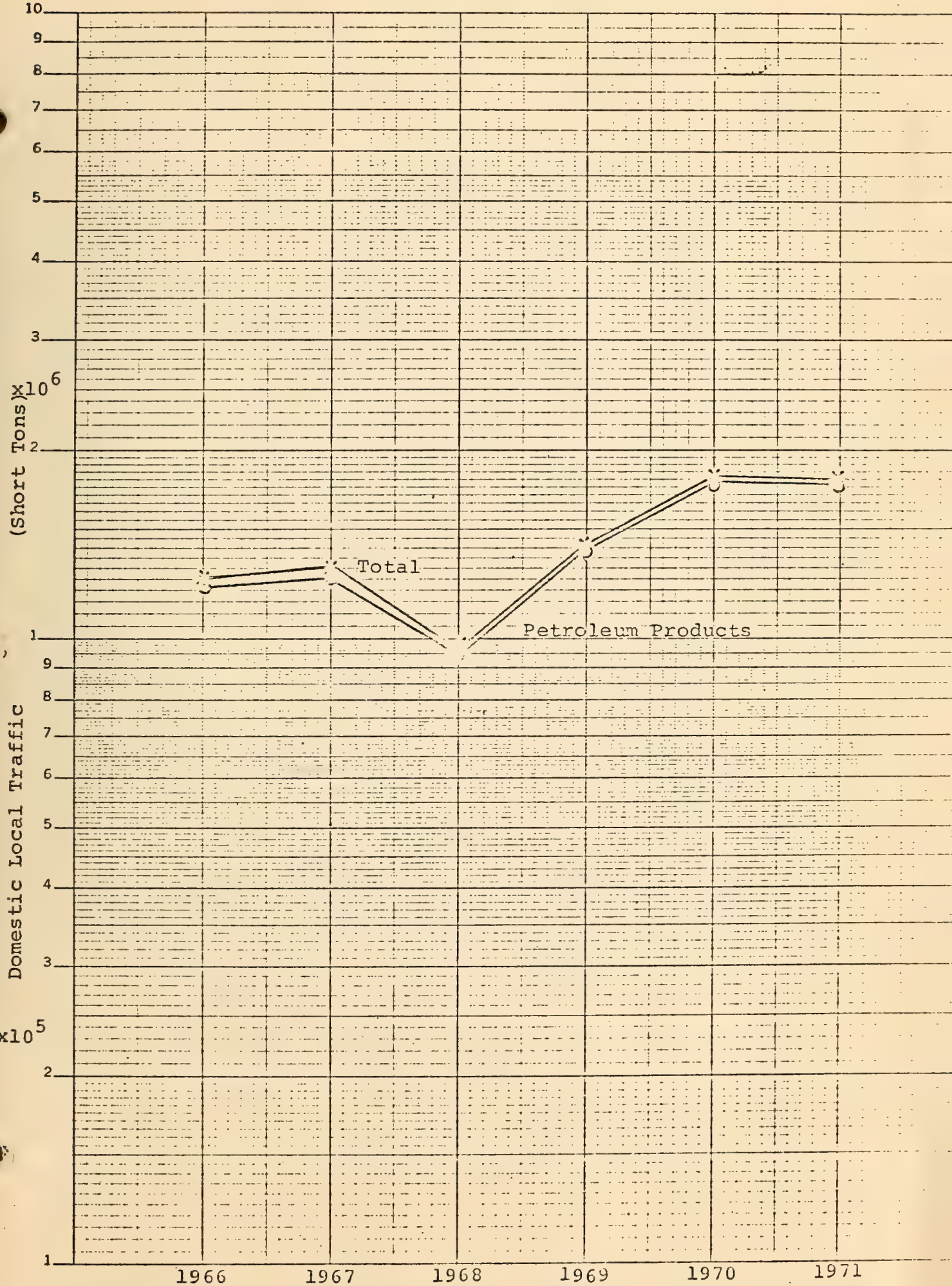
TOTAL PORT OF BOSTON TRAFFIC FLOW

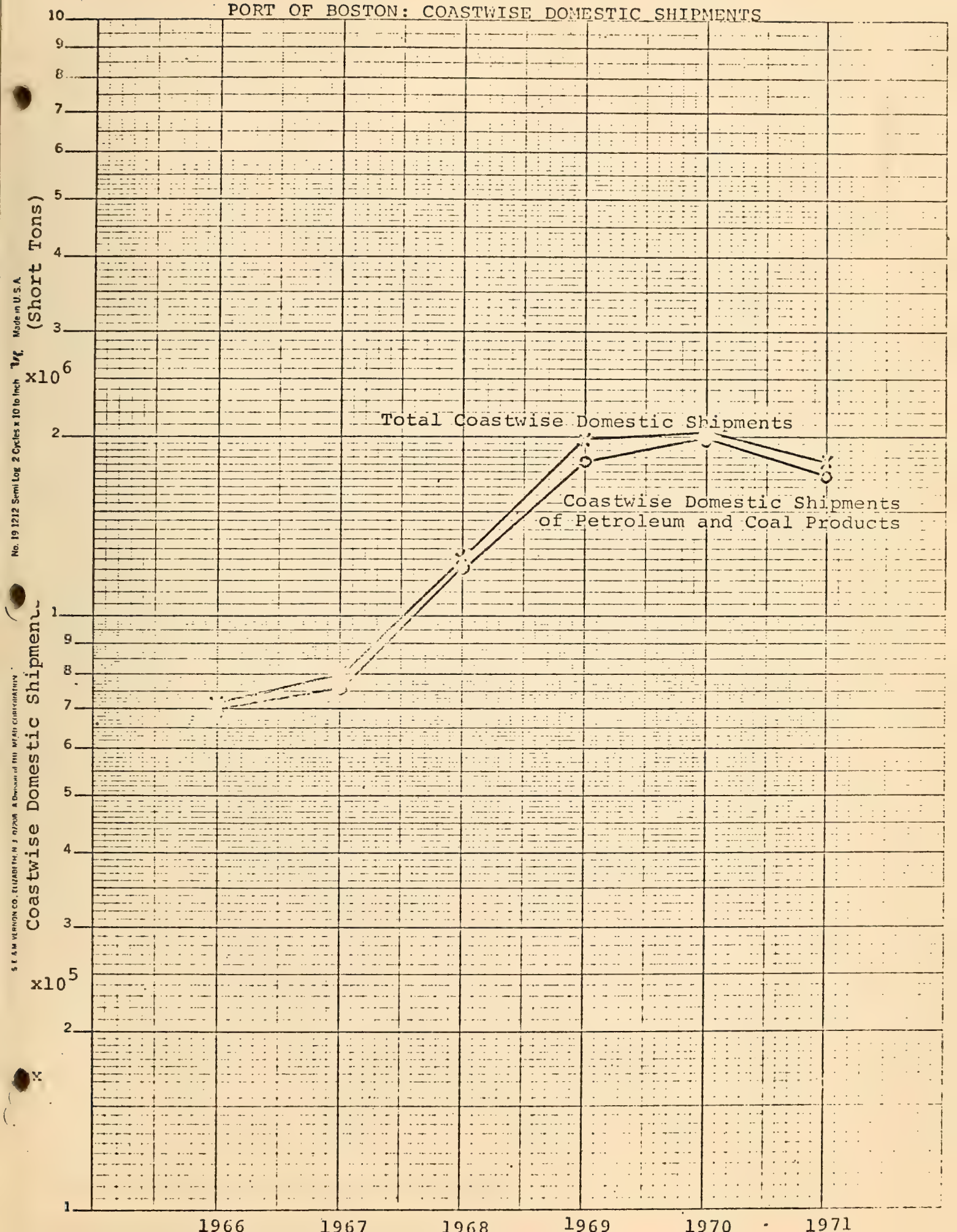
Port of Boston, Mass.

Section included: Boston Harbor, including all the tidewater lying within a line from Point Allerton to Point Shirley, and extending westward to the mainland, comprising an area of approximately 47 square miles. Controlling depth: Main ship channel to Commonwealth Pier No. 1, 38 feet (1968). Other channels range from 15 to 40 feet. President Roads Anchorage 40 feet anchorage (1968). Project depth: A channel 40 feet deep in general, but 45 feet through rock 900 feet wide, widening at the outer end to 1,100 feet from the sea to President Roads, through Broad Sound. Other channels range from 15 to 40 feet.

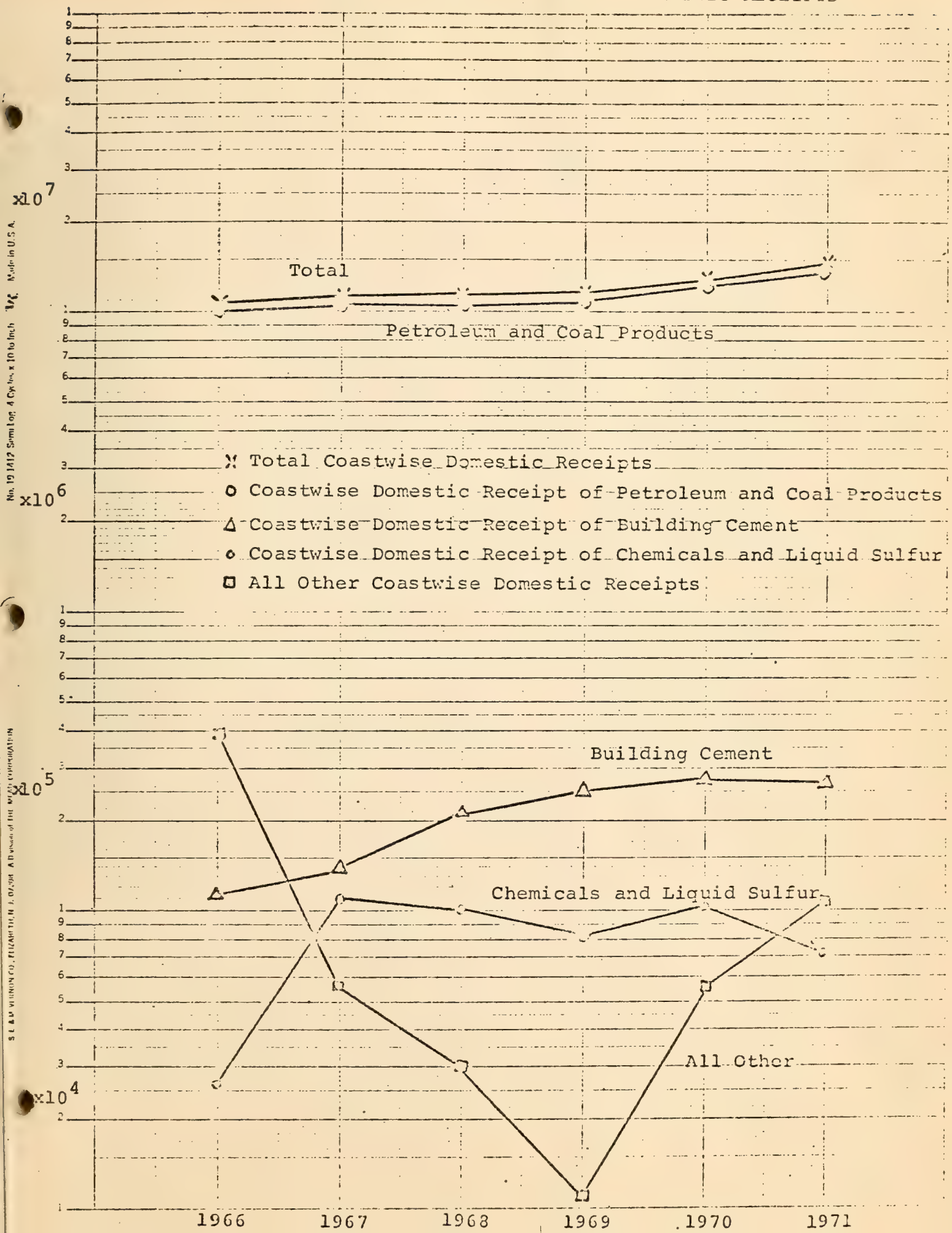
A-2

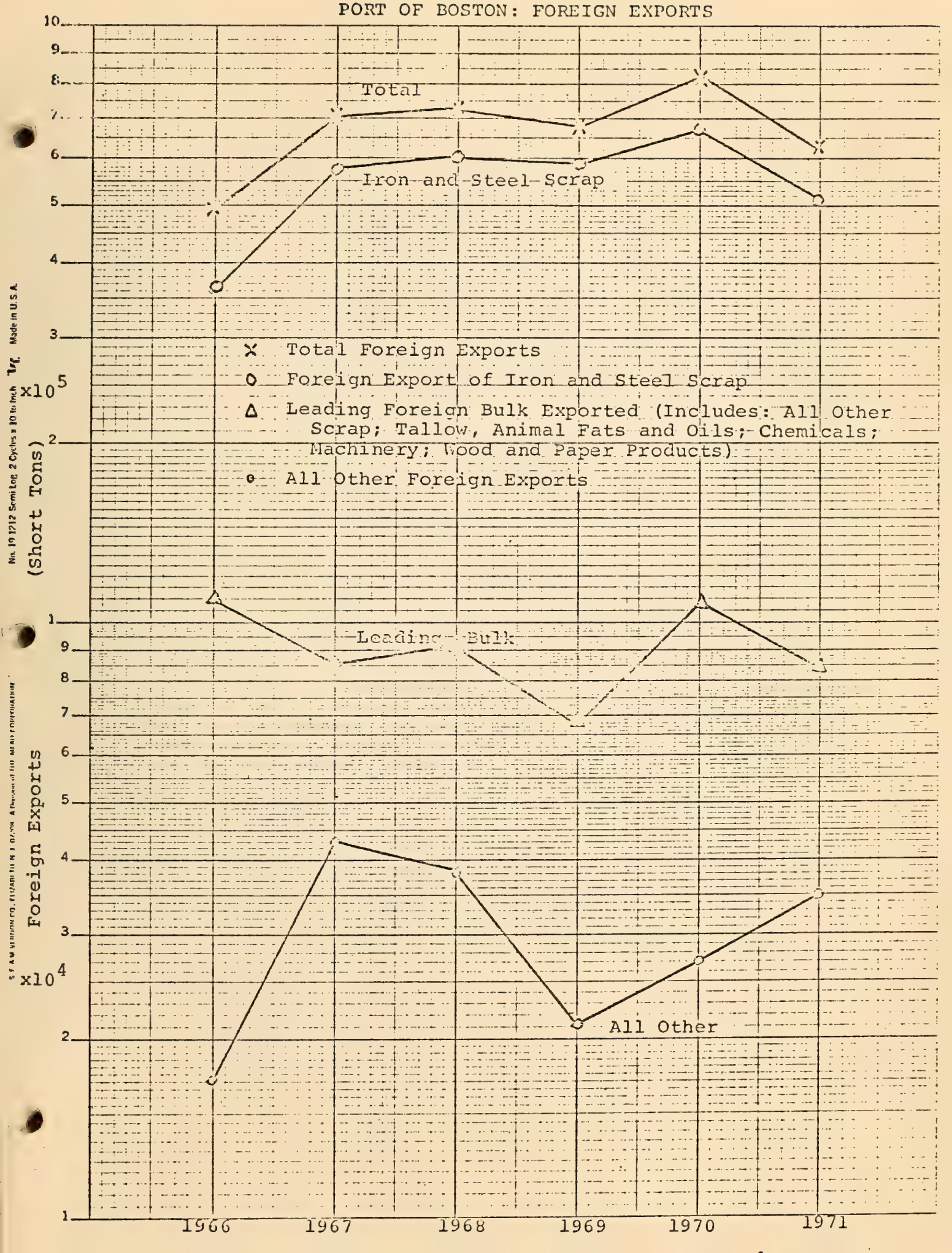
PORT OF BOSTON: DOMESTIC LOCAL TRAFFIC



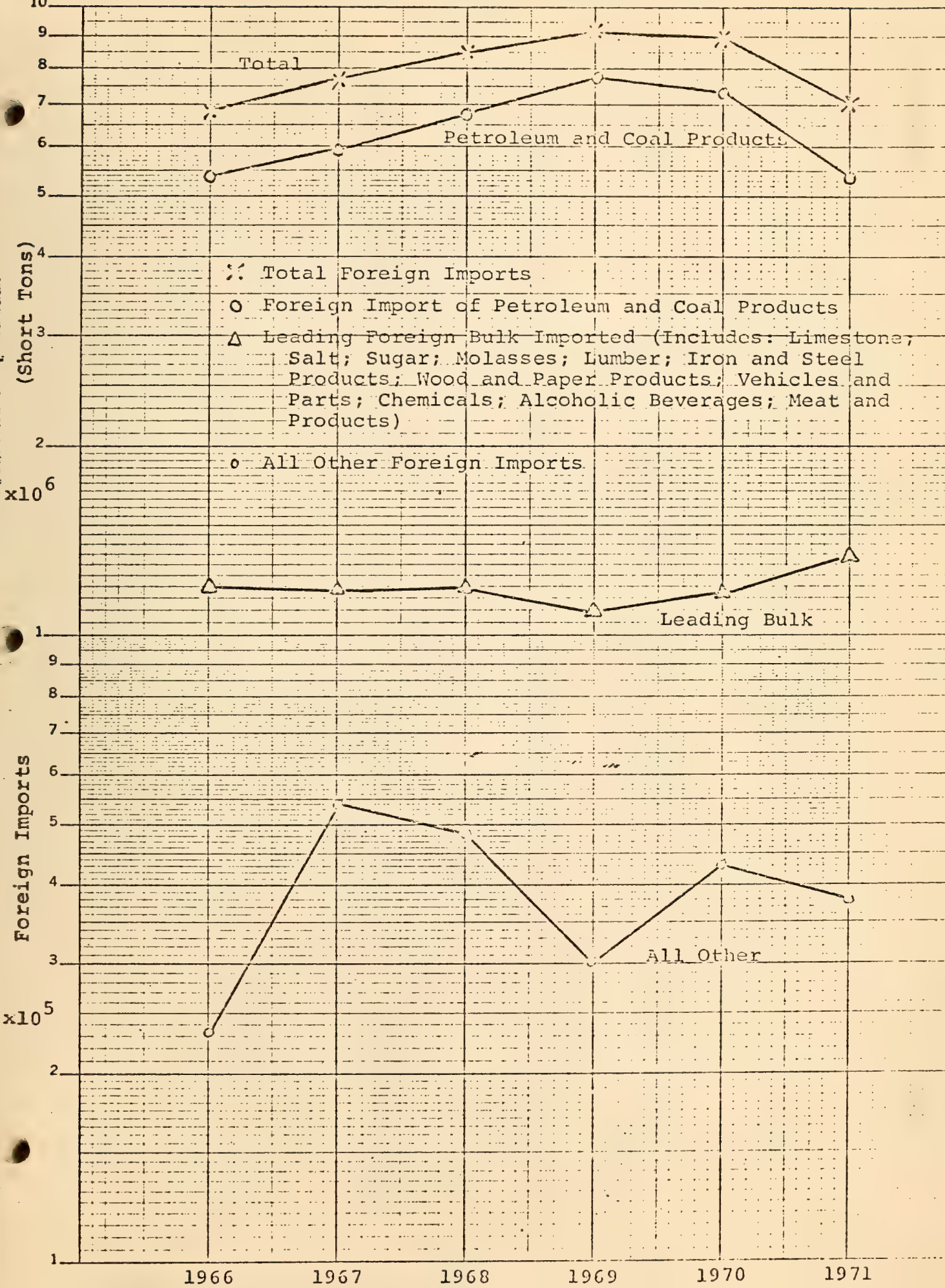

PORT OF BOSTON: COASTWISE DOMESTIC SHIPMENTS
Coastwise Domestic Shipments (Short Tons)
x10^6
x10^5
Total Coastwise Domestic Shipments
Coastwise Domestic Shipments of Petroleum and Coal Products
1966
1967
1968
1969
1970
1971

PORT OF BOSTON: COASTWISE DOMESTIC RECEIPTS




PORT OF BOSTON: FOREIGN EXPORTS
Total
Iron and Steel Scrap
Leading Bulk
All Other
Total Foreign Exports
Foreign Export of Iron and Steel Scrap
Leading Foreign Bulk Exported (Includes: All Other Scrap; Tallow, Animal Fats and Oils; Chemicals; Machinery; Wood and Paper Products)
All Other Foreign Exports
Foreign Exports (Short Tons)
x10^5
x10^4
10
9
8
7
6
5
4
3
2
1
1966
1967
1968
1969
1970
1971

PORT OF BOSTON: FOREIGN IMPORTS



Domestic Local	1971	1970	1969	1968	1967	1966
Total	1,786,383	1,819,837	1,415,456	977,488	1,301,595	1,243,883
2911-2991 Petrol Products	1,786,227	1,818,140	1,415,110	975,273	1,262,011	1,233,457
Other	156	1,697	346	2,215	39,584	10,426

Foreign Exports	1971	1970	1969	1968	1967	1966
Total	638,513	815,621	682,140	735,388	709,768	494,651
4011 Iron & Steel Scrap	517,556	678,979	592,695	603,077	579,679	365,989
4012-4019 Other Scrap	8,565	12,108	9,999	14,500	11,005	41,364
2014 Tallow, Animal Fats & Oils	46,057	55,169	39,087	45,406	49,138	43,251
2810-2891 Chemicals	11,243	13,908	7,260	10,395	7,977	7,108
3511-3611 Machinery	6,848	9,011	4,147	5,975	6,580	6,154
2411-2691 Wood and Paper Prods.	13,196	19,214	7,828	17,579	12,161	13,591
Total of These	85,909	109,410	68,321	93,855	86,861	111,468
Other Bulk	35,048	27,232	21,124	38,456	43,228	17,194

	Domestic Coastwise Receipts	1971	1970	1969	1968	1967
1)	Total	14,752,107	13,196,128	11,525,637	11,124,399	11,093,370
2)	2911-2991 Petrol & Coal Prod.	14,302,915	12,754,914	11,170,129	10,776,669	10,781,649
3)	3244 Building Cement	269,097	380,552	262,211	213,365	141,844
4)	2061 Sugar	--	--	--	--	--
5)	2081 Alcoholic Beverages	--	--	--	--	--
6)	2810-2891 Chemicals	47,235	62,487	51,376	48,857	65,439
7)	1493 Sulphur, liquid	25,100	40,857	30,261	53,891	47,432
8)	Total of These	72,335	103,344	81,637	102,748	112,871
9)	Other Bulk	107,760	57,318	11,660	31,617	57,006

1966

1) 10,680,561
2) 10,141,114
3) 113,699
4) --
5) --
6) 26,616
7) --
8) 26,616
9) 200,132

	1971	1970	1969	1968	1967	1966
Total	26,156,517	26,867,918	24,818,746	22,610,760	21,549,108	20,287,217
2911-2991 Petrol & Coal Prod.	23,207,512	23,970,615	22,197,845	19,804,909	18,722,281	17,493,039
1411 Limestone	152,921	141,911	148,053	134,496	125,903	172,595
1441 Salt	283,240	243,020	139,441	172,681	117,053	94,889
2061 Sugar	533,195	465,564	481,873	443,518	491,108	436,111
2421 Lumber	86,353	67,629	85,006	96,285	101,515	109,647
3241 Building Cement	289,059	304,007	263,658	213,442	143,911	113,808
3314-3319 Iron & Steel Prod.	129,643	126,698	121,890	182,711	171,269	209,050
3711 Motor Veh. & Parts	53,686	49,349	30,494	37,969	20,784	25,802
4011 Iron & Steel Scrap	517,827	678,982	592,817	603,677	579,679	365,989
2810-2891 Chemicals	114,968	115,047	87,524	108,481	139,089	90,697
2411-2691/2421 Wood & Paper Prod.	50,383	52,567	44,908	70,189	90,385	139,098
Total of These	2,211,275	2,244,744	1,995,664	2,063,449	1,980,696	1,757,686
Other Bulk	737,730	652,559	625,237	742,402	846,127	1,036,492

Foreign Imports	1971	1970	1969	1968	1967	1966
Total	7,141,173	9,013,657	9,186,977	8,495,110	7,645,400	6,848,980
2911-2991 Petrol & Coal Prod.	5,414,674	7,394,294	7,780,535	6,803,979	5,914,409	5,401,112
1411 Limestone	152,899	141,911	148,053	134,496	125,895	172,595
1491 Salt	283,218	203,692	128,293	148,439	91,748	70,792
2061 Sugar	528,901	465,564	481,873	443,332	491,108	436,111
2062 Molasses	18,649	19,789	10,613	13,441	28,861	12,697
2421 Lumber	85,856	67,328	84,895	96,149	101,296	96,822
3314-3319 Iron & Steel Prod.	126,816	126,184	121,535	180,807	152,536	168,654
2411-2691/2421 Wood & Paper Prod.	24,635	33,654	37,191	52,746	78,433	122,372
3711 Vehicles & Parts	53,377	49,161	30,383	37,599	20,192	25,272
2810-2891 Chemicals	33,694	36,917	28,480	47,253	44,754	49,529
2081 Alcoholic Beverages	14,615	22,358	15,514	20,075	20,301	21,818
2011-2012 Meat & Produce	23,164	21,373	18,935	31,295	34,725	38,131
Total Main Bulk	1,345,824	1,187,931	1,105,765	1,205,632	1,189,849	1,214,793
Other Bulk	380,675	431,432	300,677	486,099	541,142	6,615,905 233,075

Domestic Coastline Shipments	1971	1970	1969	1968	1967	1966
Total (excl. coal and lignite)	1,822,164	2,006,472	1,985,336	1,247,939	798,975	711,910
2911-2991 Petrol & Coal Prod.	1,728,574	2,002,106	1,831,018	1,247,743	762,663	704,208
2011-2012 Meat and Prod.	--	--	--	--	--	--
2810-2891 Chemicals	--	--	--	--	--	--
3511-3611 Machinery	3,285	605	489			
Total of These	1,731,859	2,002,711	1,831,507	1,247,743	762,663	704,208
Other Bulk	93,590	4,366	154,318	196	36,312	7,702
Coal and Lignite	———	———	151,822	———	———	———

MASSACHUSETTS PORT AUTHORITY
Maritime Division
TOTAL PORT TRADE

The Port of Boston had established new overall tonnage records in 1967, 1968, 1969 and 1970. In 1971, the port experienced a temporary setback. Volume was 669,104 tons under the previous year. A combination of factors occurring in 1971, such as the dock strike in October and November, the general slowdown of worldwide economic activity, and reduced levels of petroleum imports, are responsible for the downturn.

	1968	1969	1970	1971
Imports	8,495,110	9,186,977	9,013,657	7,141,173
Exports	735,388	682,140	815,621	638,513
Total Foreign Trade	9,230,498	9,869,117	9,829,278	7,779,686
Coastwise Receipts	11,124,399	11,525,637	13,196,128	14,752,107
Coastwise Shipments	1,247,939	1,985,336	2,006,472	1,822,164
Internal Receipts	30,436	23,200	16,203	16,177
Local and Intraport	977,488	1,415,456	1,819,837	1,786,383
Total Domestic Trade	13,380,262	14,949,629	17,038,640	18,376,831
TOTAL PORT TRADE	22,610,760	24,818,746	26,867,918	26,156,517

MASSACHUSETTS PORT AUTHORITY
Maritime Division
Port of Boston Foreign Trade Tonnage Comparison
Calendar Years, 1970, 1971

COMMODITY	Imports	1970	1971	Change
Sugar Cane & Beet		465,564	528,902	+ 63,338
Molasses		19,789	18,649	- 1,140
Gypsum & Crude Limestone		141,911	141,187	- 724
Sodium Chloride (Salt)		203,692	283,218	+ 79,526
Petroleum Products		7,409,078	5,465,693	- 1,943,385
Other Bulk Commodities+		39,959	235,567	+ 195,608
General Cargo		733,664	650,222	- 83,442
Total Tons		9,013,657	7,323,438	- 1,690,219

	Exports	1970	1971	Change
Iron and Steel Scrap		678,979	517,555	- 161,424
Crude Petroleum		None	5,157	+ 5,157
Animal Fats & Greases (Tallow)		55,169	46,057	- 9,112
General Cargo		81,473	69,485	- 11,988
Total Tons		815,621	638,254	- 177,367
Total Foreign Trade		9,829,278	7,961,692	-1,867,581

MASSACHUSETTS PORT AUTHORITY
Foreign Trade Comparison By Country
(In Short Tons)
Calendar Years 1970 - 1971

Country	IMPORTS 1970	IMPORTS 1971	EXPORTS 1970	EXPORTS 1971
Canada	228,488.7	370,283.2	205.4	21.7
Mexico	39,021.9	139,764.4	--	--
British Honduras	--	2,681.5	--	--
Salvador	14,684.6	17,684.6	--	--
Nicaragua	13,662.2	23,936.0	--	--
Costa Rica	27,003.2	46,733.8	--	--
Panama	85,973.2	7,797.5	--	--
Bahamas	43,680.3	82,562.6	--	--
Jamaica	--	1.1	--	--
Haiti	4,676.0	1.2	--	--
Dominican Republic	237,986.3	229,293.6	--	--
Leeward & Windward Island	--	23,712.4	--	--
Barbados	5.0	3.8	--	--
Trinidad	1,885,177.9	884,959.0	52.4	.2
Netherlands Antilles	2,161,203.7	1,072,268.3	--	--
French West Indies	10,411.1	7,949.2	--	--
North America Total	4,751,974.1	2,909,632.2	257.8	21.9
Columbia	39,153.9	35,179.0	576.8	--
Venezuela	3,109,643.2	2,951,729.4	1,045.1	23,890.6
Guyana	28,161.9	56,374.8	13.9	--
Ecuador	13,997.5	33,585.7	--	--
Peru	11,662.9	41.6	--	--
Brazil	45,048.6	18,964.1	1,722.5	928.0
Chile	--	62,252.0	30.5	--

Country	IMPORTS 1970	IMPORTS 1971	EXPORTS 1970	EXPORTS 1971
Uruguay	4,320.0	2,061.2	65.9	3.8
Argentina	23,392.1	20,664.3	529.5	8,853.2
South America Total	3,275,380.1	3,180,852.1	3,984.2	33,675.6
Iceland	65.0	1.5	--	--
Sweden	218.0	106.1	29,525.3	192.7
Norway	41.3	.3	181.9	246.4
Finland	22,229.6	15,545.1	254.1	219.6
Denmark	979.0	553.2	124.4	72.4
United Kingdom	179,493.2	65,795.8	21,511.8	61,067.1
Ireland	26.8	349.5	42.3	64.4
Netherlands	16,966.5	94,945.5	27,581.1	20,660.3
Belgium	132,203.4	103,665.3	5,621.3	8,281.6
France	12,656.2	7,701.0	2,323.6	2,902.6
W. Germany	71,898.6	58,759.3	4,046.7	4,465.3
Poland	11,472.6	10,352.7	3,138.1	3,960.9
U.S.S.R.	20.0	902.2	--	--
Azores	118.4	41.6	.3	--
Spain	26,614.8	23,103.5	113,041.1	62,099.0
Portugal	5,170.4	5,372.1	2,089.1	5,370.7
Malta	.7	16.8	--	--
Italy	95,875.7	262,598.6	140,379.0	224,282.3
Yugoslavia	6,151.1	5,928.9	394.4	15,322.4
Greece	17,486.8	23,239.6	641.1	36.9
Rumania	20,467.0	57.6	--	--
Bulgaria				
Turkey	841.8	287.3	4,359.0	1.1
Europe Total	621,014.6	679,325.0	355,254.6	409,245.7

Country	IMPORTS 1970	IMPORTS 1971	EXPORTS 1970	EXPORTS 1971
Lebanon	10.2	4.0	96.6	35.9
Iran	4.0	1.3	--	--
Israel	--	88.5	--	--
Aden	--	.4	--	--
Kuwait	--	--	6.2	--
Saudi Arabia	--	--	1.4	--
Arabia	--	--	.6	--
India	41,921.1	37,569.9	19.4	47.8
Pakistan	481.7	85.5	1,102.3	--
Ceylon	452.1	699.1	--	--
Thailand	12,355.4	2,714.0	371.0	223.5
So. Vietnam	--	--	--	340.5
Cambodia	56.5	--	--	--
Malaysia	6,144.5	10,403.1	32.8	33.7
Singapore	3,161.2	3,967.8	368.1	417.7
Indonesia	2,933.1	2,541.3	108.0	76.6
Philippines	36,094.2	60,947.5	3,017.1	1,894.6
Korea Republic	4,785.8	192.0	18,689.1	45,889.6
Hong Kong	10,212.7	10,032.8	8,697.6	10,480.1
Taiwan	18,314.6	19,419.3	1,702.4	30,615.1
Japan	149,764.1	145,617.4	391,649.5	92,182.1
Nansei Nampo Islands	1.3	--	3.1	12.4
Asia Total	286,692.5	294,283.9	425,865.2	182,249.6
Australia	21,291.5	25,724.8	4,683.4	4,364.5
New Zealand	24,375.7	21,892.1	120.8	173.6
British W. Pacific Islands	--	--	.3	--
Australia-Oceania Total	45,667.2	47,616.9	4,804.5	4,538.1

Country	IMPORTS 1970	IMPORTS 1971	EXPORTS 1970	EXPORTS 1971
Morocco	352.4	35.4	1,171.3	27.5
Algeria	4,511.0	190,831.9	1,102.3	1,336.5
Tunisia	45,313.1	--	--	--
Lybia	--	--	5.2	6.1
Egypt	--	--	12,669.5	5,607.6
Cameroon	--	63.1	9.2	--
Senegal	--	--	5.8	2.6
Ivory Coast	2,657.8	1,557.3	11.8	8.3
Ghana	5,399.7	3,128.7	9.8	16.1
Nigeria	11.2	2,032.0	16.2	20.6
Western Africa	--	--	3.2	--
Madeira Islands	214.7	167.7	1.2	--
Angola	--	153.2	4.9	5.6
Liberia	552.3	963.3	3.6	.9
Congo	33.4	--	.2	--
Kenya	325.7	.4	21.3	195.6
Tanzania	293.2	--	33.6	15.7
Mauritius	--	7,034.5	--	--
Mozambique	3,335.9	2,222.3	680.5	52.0
Malagasy Republic	60.4	--	--	--
French Indian Ocean Areas	--	2.7	--	--
Republic of So. Africa	9,693.0	3,535.3	3,386.8	1,227.7
Africa Total	72,753.8	211,727.8	19,136.4	8,522.8
Adjustments	-39,825.3	--	+6,318.3	--
U.S. PORT TOTAL	9,013,657.0	7,323,437.9	815,621.0	638,253.7

MASSACHUSETTS PORT AUTHORITY

EXPORTS 1971

Leading Commodities

Commodity	Short Tons
Iron and Steel Scrap	517,555.4
Tallow	46,057.3
Paper and Paper Products	11,255.0
Leather	6,855.3
Plastic Materials, Resins & Regenerated Cellolose	5,205.5
Crude Petroleum	5,157.4
Hides and Skins	4,629.5
Textile Fabric Waste Including Rags	3,987.5
Waste Paper	3,198.2
Film, Plates, Chemicals & Allied Photographic Supplies	1,989.2
Organic Chemicals	1,945.6
Inorganic Chemical Elements	1,326.5
Asphalt, Asbestos, Cement & Related Building Materials	1,291.0
Corn or Maize Unmilled	1,274.3
Special Textile Fabrics and Related Products	1,174.2
Woodpulp - Chemical	1,152.8
Transmission Shafts, Pulleys, Gaskets, etc.	1,065.9
Alloys of Nonferrous Metals	1,029.2
Nonferrous Metal Scrap	1,005.4
Steel Mill Products	904.0
Fatty Acids and Waxes	816.5
Textile and Leather Machinery & Parts	785.0
Electrical Power Machinery	587.5
Power Generating Machinery	580.2
Pigments, Paints, Varnishes, Inks, and Related Materials	565.0
Natural Gas	561.8
Paper Cutting Machinery	542.5
Nonferrous Metal Ores and Concentrates	540.9

MASSACHUSETTS PORT AUTHORITY

IMPORTS 1971

Leading Commodities

Commodity	Short Tons
Petroleum Products	5,465,998.6
Sugar	528,902.0
Salt	283,217.8
Natural Gas	190.831.9
Gypsum	141,187.0
Iron and Steel	126,816.3
Lumber	85,856.4
Automobiles	52,643.2
Footwear	28,985.2
Meat and Meat Preparations	23,163.6
Pumice	22,403.4
Cement	19,934.0
Molasses	18,648.8
Rubber, Crude	18,215.4
Wool and Other Animal Hair	17,749.4
Fruits and Vegetables, Prepared or Preserved	17,688.3
Nails, Tacks, Screws, Nuts, Bolts, Rivets, etc.	15,662.8
Fish and Fish Preparations	15,330.3
Alcoholic Beverages	14,454.2
Hides and Skins, Raw or Cured	12,090.9
Paper and Paper Products	12,045.2
Glass	10,858.5
Plywood	7,998.5
Cocoa Beans	6,997.1
Ceramic Tile	6,828.2
Wire Products	6,526.3
Man-made Textile Fibers	6,304.2
Animal Materials (Bones, Ivory, Horns, etc.)	6,199.8
Building and Monumental Stone	6,149.0

MASSACHUSETTS P[illegible]T AUTHORITY
Foreign Trade Comparison By Commodity
Calendar Years 1970 - 1971
(In Short Tons)

Commodity Description	IMPORTS 1970	IMPORTS 1971	EXPORTS 1970	EXPORTS 1971
Cattle - Live				3.5
Meat and Meat Preparations	21,373.4	23,163.6	130.1	542.0
Dairy Products and Eggs	646.2	409.6	883.6	465.7
Fish and Fish Preparations	19,699.9	15,330.3	526.0	532.0
Cereals and Cereal Preparations	1,041.2	896.5	423.2	1,294.3
Fruits and Vegetables, Fresh or Preserved	28,212.6	17,688.3	1,279.4	455.8
Sugar, Sugar Preparations and Honey	485,530.2	547,772.7	3.2	21.5
Coffee, Tea, Cocoa and Spices	11,785.8	10,093.3	30.7	1.2
Feeding Stuff For Animals	1,389.0	939.7	687.8	38.0
Miscellaneous Food Preparations	468.3	430.2	16.6	.9
FOOD AND LIVE ANIMAL TOTAL	570,146.6	616,724.2	3,980.6	3,354.9
Beverages	22,431.5	14,556.8	32.2	36.9
Tobacco and Tobacco Manufactures	8.8	183.8	--	--
BEVERAGES AND TOBACCO TOTAL	22,440.3	14,740.6	32.2	36.9
Hides, Skins and Furskins, Raw or Cured	11,478.4	12,090.9	3,681.1	4,629.5
Oilseeds, Oil nuts and Kernels	69.7	4.4	--	--
Rubber, Crude, Synthetic and Reclaimed	13,403.6	19,791.8	1,125.7	315.0
Wood, Lumber and Cork	67,331.9	85,868.0	308.8	463.9
Pulps and Waste Paper	289.8	145.3	8,296.3	4,403.1

Commodity Description	IMPORTS 1970	IMPORTS 1971	EXPORTS 1970	EXPORTS 1971
Textile Fibers and Their Wastes	45,651.8	29,363.8	4,519.5	4,659.6
Crude Fertilizers and Crude Minerals	361,761.4	450,411.3	1,688.9	465.6
Metalliferous Ores and Metal Scrap	3.1	256.0	681,197.6	519,101.7
Animal and Vegetable Materials N.E.S.	16,870.4	11,881.0	40.4	40.2
CRUDE MINERALS INEDIBLE EXPT. FUELS TOTAL	516,860.1	609,812.5	700,858.3	534,078.6
Coal, Coke Briquets and Peat Moss	325.4	203.5	--	--
Petroleum and Petroleum Products	7,454,528.5	5,465,998.6	473.5	5,570.7
Gas - Natural and Manufactured	4,511.0	190,831.9	--	561.8
MINERAL FUELS AND LUBRICANTS TOTAL	7,459,936.9	5,657,034.0	473.5	6,132.5
Animal Oils and Fats	502.6	704.8	55,174.2	46,057.3
Vegetable Oils and Fats	3,044.1	3,878.0	14.5	9.1
Fatty Acids, And Waxes	9.0	26.5	856.9	816.5
OILS AND FATS - ANIMAL & VEGETABLE	3,555.7	4,609.3	56,045.6	46,882.9
Chemical Elements & Compounds	13,423.3	9,819.0	5,282.5	3,610.2
Mineral Tar - Tar Oils and Crude Chemicals	30.3	12.8	183.2	250.3
Dyeing Tanning & Coloring Materials	5,736.0	6,322.8	1,127.9	707.1
Medicinal and Pharmaceutical Products	40.0	12.3	3.8	7.0
Essential Oils & Perfume Materials	63.5	212.3	819.4	366.7
Fertilizers	20.1	40.4	--	--
Explosives & Pyrotechnic Products	3.8	7.0	--	.2
Synthetic Resins & Regenerated Cellulose	6,598.1	4,498.8	4,317.3	5,205.5
All Other Chemical Products (Starch, Casein) etc.	6,681.4	5,376.6	1,272.1	1,000.6
CHEMICAL TOTALS	32,596.5	26,302.0	13,006.2	11,147.6

Commodity Description	IMPORTS 1970	IMPORTS 1971	EXPORTS 1970	EXPORTS 1971
Leather and Leather Furskins	6,702.2	5,481.6	4,927.9	6,997.3
Rubber Manufactures, Tires, Belting, etc.	2,256.5	2,230.2	331.7	277.8
Wood & Cork Manufactures, Plywood, Veneers	12,816.5	9,605.2	217.2	120.5
Paper, Paperboard & Manufactures Thereof	16,583.1	12,081.2	12,066.1	11,255.0
Textile Yarn and Fabrics	11,167.5	10,485.4	1,355.3	1,936.6
Nonmetallic Minerals, Glass, Cement, Lime etc.	62,147.7	50,498.2	2,307.1	2,117.7
Steel Mill Products	126,184.7	126,816.3	490.9	904.0
Nonferrous Metals - Silver, Copper, Lead etc.	9,392.3	10,706.6	759.8	1,029.2
Manufactures of Metals - Nails, Screws, etc.	38,541.6	31,884.5	1,061.4	871.0
MANUFACTURED GOODS TOTALS	285,792.1	259,789.2	235,517.4	25,509.1
Machinery Other Than Electric	21,281.1	11,541.5	6,901.5	4,741.6
Electrical Machinery And Appliances	17,796.4	10,938.3	1,634.7	1,915.1
Transport Equipment	55,290.5	57,233.2	187.7	407.9
MACHINERY AND TRANSPORT EQUIP. TOTALS	94,368.0	79,713.0	8,723.9	7,064.6
Sanitary, Plumping, Heating and Light Fixtures	1,119.4	839.7	16.4	8.8
Furniture	3,963.2	2,868.0	17.7	155.1
Travel Goods, Handbags & Other Personal Goods	1,067.0	2,021.9	9.8	16.4
Clothing and Accessories	2,361.2	2,314.8	17.0	21.7
Footwear	37,069.4	28,985.2	67.6	81.6
Scientific Instruments & Optical Goods	890.7	833.0	1,375.6	2,655.2
Misc. Manufactured Articles N.E.S.	17,221.9	16,084.1	1,128.9	1,081.8
MISC. MANUFACTURED ARTICLES TOTALS	63,692.8	53,946.7	2,633.0	4,020.6

Commodity	IMPORTS 1970	IMPORTS 1971	EXPORTS 1970	EXPORTS 1971
Special Transactions Not Classified by Kind	4,661.4	765.6	32.0	26.0
Arms Of War, Ammunition & Fighting Vehicles	3.9	.8	--	--
COMMODITIES NOT ELSEWHERE CLASSIFIED	4,665.3	766.4	32.0	26.0
ADJUSTMENTS PLUS OR MINUS	- 39,825.3	--	+ 6,318.3	--
U.S. PORT TOTAL	9,013,657.0	7,323,437.9	815,621.0	638,253.7
DOLLAR VALUE	$ 631,230,062	$ 604,082,848	$ 128,388,724	$ 128,618,826

MASSACHUSETTS PORT AUTHORITY

Maritime Division

Foreign Trade Tonnage Activity in the Major Ports of the United States

Calendar Year 1971 Versus 1970

(In Thousands of Short Tons)

A combination of factors which developed during 1971 caused U.S. Foreign Trade Tonnage to slump by some 21.4 million tons when compared with 1970. The decline can be attributed entirely to the decrease of 35.7 million tons in the category of export cargo. Import movements, on the other hand, recorded a 4.2% increase over the 1970 figures. Ten of the eleven major U.S. Ports analyzed posted export tonnage losses in 1971 with the exception of the Port of Houston which in contrast registered a gain of 11.2% over the preceding year. Foreign trade tonnage figures credited to leading U.S. Ports are outlined below and are expressed in thousands of short tons.

	Exports		Imports		Total Foreign Trade	
	1971	1970	1971	1970	1971	1970
Boston	638	816	7,323	9,014	7,961	9,829
New York	5,623	7,141	51,332	53,892	56,955	61,032
Philadelphia	2,649	3,584	28,544	26,558	31,193	30,142
Baltimore	6,475	9,375	20,721	22,186	27,196	31,561
Hampton Roads	36,769	49,797	10,142	8,360	46,911	58,157
New Orleans	14,222	15,368	8,523	7,535	22,745	22,903
Houston	13,795	12,256	6,026	4,828	19,821	17,083
Los Angeles	3,610	4,909	7,136	4,811	10,746	9,720

	Exports		Imports		Total Foreign Trade	
	1971	1970	1971	1970	1971	1970
San Francisco	608	791	1,612	1,090	2,220	1,880
Portland, Oregon	2,823	3,932	1,556	1,659	4,379	5,591
Seattle	1,329	1,685	2,909	2,665	4,238	4,350
Total, All Atlantic Ports	59,790	79,303	221,439	218,544	281,229	297,847
Total, All Gulf Ports	74,323	78,092	51,479	46,904	125,802	124,996
Total, All Great Lakes Ports	33,478	35,932	25,193	26,447	58,671	62,379
Total, All Pacific Ports	37,584	47,578	38,924	30,846	76,508	78,424
Total, All U.S. Ports	205,175	240,905	337,035	322,741	542,210	563,646

MASSACHUSETTS P[illegible]T AUTHORITY
Maritime Division
Vessel Activities in the Major Ports of the United States
Calendar Years 1970-71

Lengthy dock strikes carried out by members of the International Longshoremen Association during the closing half of 1971 and the resulting uncertain labor conditions which prevailed before and after these work stoppages caused numerous vessels, originally destined for U.S. waterfronts, to be diverted to Canadian and Mexican ports. Consequently, the total number of oceangoing vessels arriving at the eleven major ports of the United States during the calendar year 1971 amounted to 43,530. This figure represents a decrease from 50,276 arrivals recorded in 1970. A study of the 1971 figure reveals that the Port of Boston's share of the total volume of ship traffic remained unchanged at 3.5%. In the following table details are given of the number of vessels arriving at the leading ports during 1970 and 1971.

Port	1970	Port	1971
1. New York	10,338	1. New York	9,066
2. Philadelphia	5,817	2. Philadelphia	5,064
3. Los Angeles	5,022	3. New Orleans	4,231
4. Hampton Roads	4,882	4. San Francisco	4,099
5. Baltimore	4,661	5. Hampton Roads	4,075
6. San Francisco	4,642	6. Houston	4,035
7. New Orleans	4,630	7. Los Angeles	4,000
8. Houston	4,009	8. Baltimore	3,988
9. Seattle	2,481	9. Seattle	1,810
10. Portland, Oregon	2,019	10. Portland, Oregon	1,637
11. Boston	1,775	11. Boston	1,525
Total	50,276	Total	43,530

MASSACHUSETTS PORT AUTHORITY
Maritime Division
Port of Boston Vessel Activity
Calendar Year 1971 Versus 1970

Vessel arrivals in 1971 dropped by 14% when compared with the same twelve months of 1970. Boston continued to lose a number of general cargo vessels (giving full consideration to the 58 day dock strike), as the smaller break bulk freighters began to be replaced by larger, modern, more efficient, full containerized and semicontainerized ships.

It is noteworthy to mention that during the months 1971 was strike free, fewer general cargo vessels had carried 54,358 more tons of freight than had a greater number of ships during the corresponding period of 1970. After a number of U.S. flag tankers of World War II vintage are retired or scrapped, the decline of Boston's tanker movements should level off at approximately 600 arrivals a year. In the meantime, the coastwise transportation of petroleum products will continue to be taken over by mammoth ocean-going barges, many of which can transport twice as much product, and more economically than the old T-2 tankers. To counter this trend, the Port of Boston must find a way to accommodate the deep draft vessels of the international shipping market. Arrivals classified by type of vessel are outlined below:

Type of Vessel	1970	1971	Change
Bulk Carriers	225	229	+ 04
General Cargo	764	594	- 170
Passenger	21	28	+ 07
Tankers	755	656	- 99
Other	10	18	+ 08
Total	1,775	1,525	- 250

Inter Office Memorandum

To Mr. Thomas T. Soules — Subject Vessel Activity Report

From Mr. R. Moriconi — Date January 15, 1973

Below is the Port of Boston Vessel Arrival Comparison Report for the month of December 1972 versus 1971. The 1971 figures show the effect of the I. L. A. strike which began October 1st, and was terminated via the Taft-Hartley Injunction on November 27th.

Type of Vessel	1971	1972	Change
Bulk Carriers	12	20	+08
Break Bulk General Cargo	37	43	+06
Fully Containerized Gen. Cargo	08	19	+11
Passengers	03	01	-02
Tankers	65	63	-02
Other	--	--	--
Total	125	146	+21
	Year To Date		
Bulk Carriers	229	225	- 04
Break Bulk General Cargo	520	480	- 40
Fully Containerized Gen. Cargo	74	163	+ 89
Passengers	28	36	+ 08
Tankers	656	635	- 21
Other	18	10	- 08
Total	1,525	1,549	+ 24

R. Moriconi
Maritime Assistant

RM/pmm

MASSACHUSETTS PORT AUTHORITY
Maritime Division
Vessel Arrivals By Country of Registry
Calendar Year 1971

An analysis, according to country of registry, reveals that 37% of the vessels using the Port of Boston were American-Flag vessels. By actual count, there were 566 U.S. Flag arrivals as compared with 959 foreign flag. Thirty-four foreign nations were represented by ships visiting the Port of Boston during 1971. First place went to the ships of Norway with a total of 166 arrivals which is an increase of four vessels over 1970. Second place was taken by the ships of Liberia registering 138 arrivals as compared to 185 the previous year. West Germany took third place calling 125 times against 162 in 1970; and finally fourth place was captured by Great Britain with 110 arrivals, which is 34 vessels below the previous year's figure. The number of vessels indexed by country of registry is outlined below:

Country of Registry	No. of Vessels	Country of Registry	No. of Vessels
Argentina	18	Liberia	138
Austria	1	Netherlands	14
Belgium	2	Nicaragua	1
Brazil	2	Norway	166
Canada	2	Panama	66
Colombia	1	Peru	1
Cyprus	1	Philippines	17
Denmark	22	Poland	12
Finland	19	Portugal	7
France	2	Singapore	1
Ghana	1	Spain	2
Great Britain	110	Sweden	29
Greece	76	Taiwan	5
India	20	U.S. Gen. Cargo Vessels	78
Ireland	3	U.S. All Other Vessels	488
Israel	11	Uruguay	1
Italy	27	W. German	125
Japan	43	Yugoslavia	13

MASSACHUSETTS PORT AUTHORITY
Maritime Division
Customs Revenue Collections

Customs collections from all districts for the calendar year 1971 amounted to $3,999,600,844 which is an increase of over $658 million from the figure recorded in 1970. The 10% surcharge initiated by President Nixon on August 15, 1971 produced $466,483,325 or more than two thirds of the entire increase. Boston's share of the total revenue collected was $126,885,581. Although this figure represents a growth of $8.7 million over the preceding year, the Port of Boston accounted for only 3.2% of the sum collected in 1971, while in 1970 Boston's portion had been 3.5%. The decline of over two million tons in the receipt of residual fuel oil direct from foreign sources has dealth Boston a potential loss of $1.5 million in customs collections. As the result, the Port of Baltimore has taken over 7th place and our seaport has returned to the eighth position which it had occupied in 1969. The failure of all elements within the Port of Boston to meet the urgent demand for deep water berths for bulk products continues the long-term downward trend of the Port of Boston. The leading collection districts, designated by its headquarters port, are outlined below:

Total Customs Collections

1.	New York Seaport & Airport	$1,292,281,119	1.	New York Seaport & Airport	$1,149,982,508
2.	Los Angeles	356,317,714	2.	Los Angeles	299,274,505
3.	Detroit	287,577,670	3.	Detroit	235,954,584
4.	Chicago	201,267,616	4.	Chicago	152,466,946
5.	San Francisco	175,016,604	5.	San Francisco	148,691,782
6.	Philadelphia	167,457,494	6.	Philadelphia	145,080,662
7.	Baltimore	127,092,401	7.	BOSTON	118,148,245
8.	BOSTON	126,885.581	8.	Cleveland	114,974,610
9.	Seattle	114,125,783	9.	Baltimore	102,470,230
10.	New Orleans	110,289,977	10.	Seattle	83,638,866
11.	Cleveland	104,744,615	11.	New Orleans	83,215,089
12.	Houston	97,307,764	12.	Houston	68,225,034
13.	Ogdensburg	92,175,675	13.	Ogdensburg	67,198,247
14.	Buffalo	80,420,923	14.	Norfolk	62,411,986

MASSACHUSETTS PORT AUTHORITY
Maritime Division
Container Information

Despite the longshoremen strike, which tied up East and Gulf Coast Ports during the month of October and for nearly all of November, the number of containers moving through Boston piers increased by 37.8% over 1970. Because of the strike, the Mystic Public Container Terminal (J. F. Moran Docks) inaugurated in September, was not a factor in the 1971 container figures. However, the introduction of this facility has accelerated Boston's growth in the container field, and we forecast moving over 65,000 "Big Boxes" in 1972. The figures found below are expressed in twenty foot equivalents:

	1970	1971
Inward	14,616	22,704
Outward	11,844	19,768
Total containers handled	26,460	42,472

MASSACHUSETTS PO[illegible] AUTHORITY
Maritime Division
Port of Boston's Oceanborne Passengers

The year 1971 was not yet a month old when Prudential-Grace Lines removed from active service the liners "SANTA PAULA" and "SANTA ROSA" which represented the last U.S. flag passenger ships operating on the Atlantic Coast. The two vessels joined five other American luxury liners already inactive and tied up at various ports. Although there was much talk of returning these liners to service under the American flag, this illusion came to an end in November 1971, when the House Rules Committee voted favorably on legislation introduced to permit the sale of these idled ships to foreign concerns.

Since U.S. flag luxury liners had rarely visited our seaport in recent years, the collapse of the American passenger fleet had little or no effect on Boston's oceanborne passenger activity. The number of ocean travelers utilizing the Port of Boston during 1971 increased by nearly ten thousand; 35% over the figure recorded in 1970. The growth, however, reflects for the most part the increasing popularity of cruises to the Caribbean and of the weekend pleasure trips to "Nowhere". In the following table, details are given as to the number of passengers utilizing the Port of Boston during calendar year 1971 versus 1970.

	1971	1970
Inward	13,247	8,756
Outward	14,995	9,625
Total	28,242	18,381

GLOSSARY

Exports-Imports	Trade between the Port of Boston and foreign ports.
Coastwise Receipts and Shipments	Domestic traffic receiving carriage over the ocean, e.g. Boston to Puerto Rico, New Orleans to Boston.
Internal Receipts	Movements of marine products, sand, gravel, taken directly from beds of the ocean.
Local and Intraport	Movements of freight within the confines of the Port.
Bulk Cargo	Selected commodities that are normally shipped loose and in large quantities, which in the loading and unloading thereof are ordinarily shoveled, scooped, forked or mechanically conveyed, and which are not in packages, containers, or in units of such size to permit piece-by-piece handling, e.g. salt, gypsum, sugar etc.
General Cargo	Commodities that are usually unitized, boxed, bagged, crated, etc., and normally require handling by piece, unit load or in separate drafts.
Tonnage	Expressed in short tons (2,000 lbs.).

SECTION 2

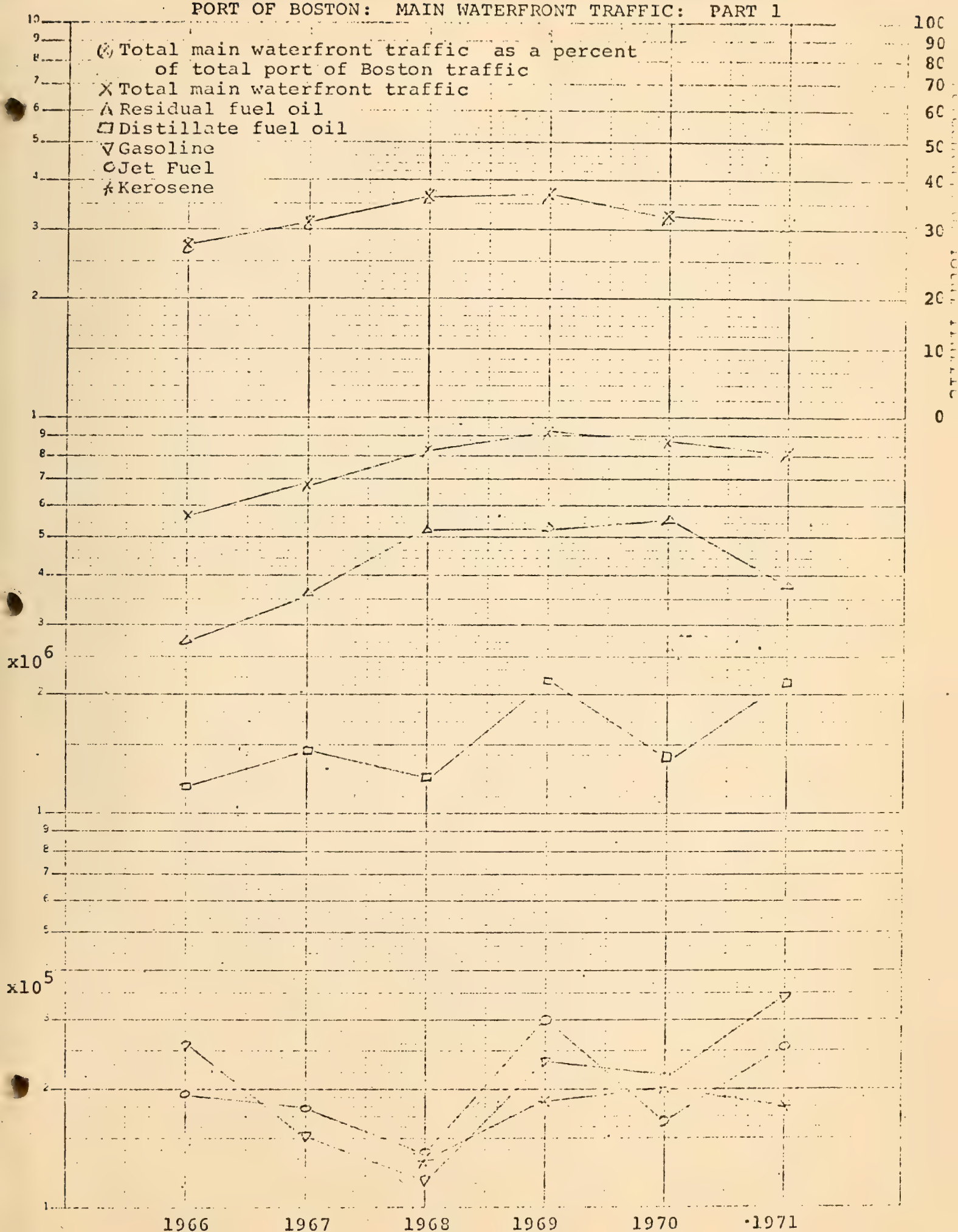
DISTRIBUTION OF MAJOR COMMODITIES

BY SPECIFIC AREA

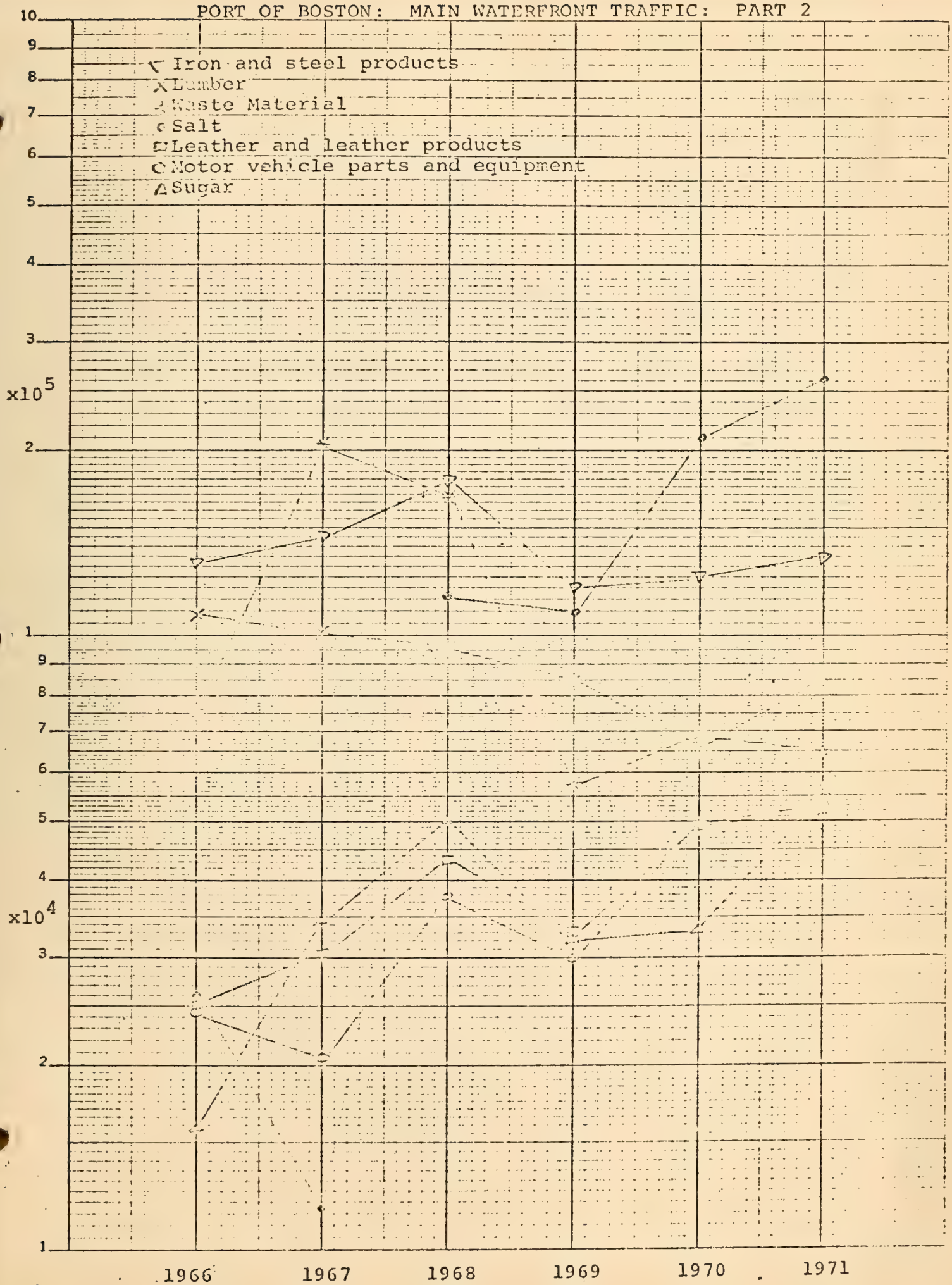
MAIN WATERFRONT TRAFFIC

Main Waterfront (Included in Port of Boston) - Section included: From a point in President Roads between Deer Island and Long Island to the mouths of Ft. Point Channel, Charles River, Little Mystic River, Mystic River, and Chelsea River. Controlling depth: 38 feet in 40-foot channel to Mystic Pier No. 1 (1967); 35 feet in the 35-foot area (1967) and 38 feet in the 40-foot extension to President Roads Anchorage (1967); 38 feet in the 40-foot anchorage (1967). All at mean low water. Project depth: 35 to 40 feet from President Roads to the mouths of Ft. Point Channels, Charles River, Little Mystic River, Mystic River, and Chelsea River; 40 feet in President Roads Anchorage and anchorage extensions; 30 feet from mouth of Reserved Channel to L Street Bridge. All at mean low water.

PORT OF BOSTON: MAIN WATERFRONT TRAFFIC: PART 1



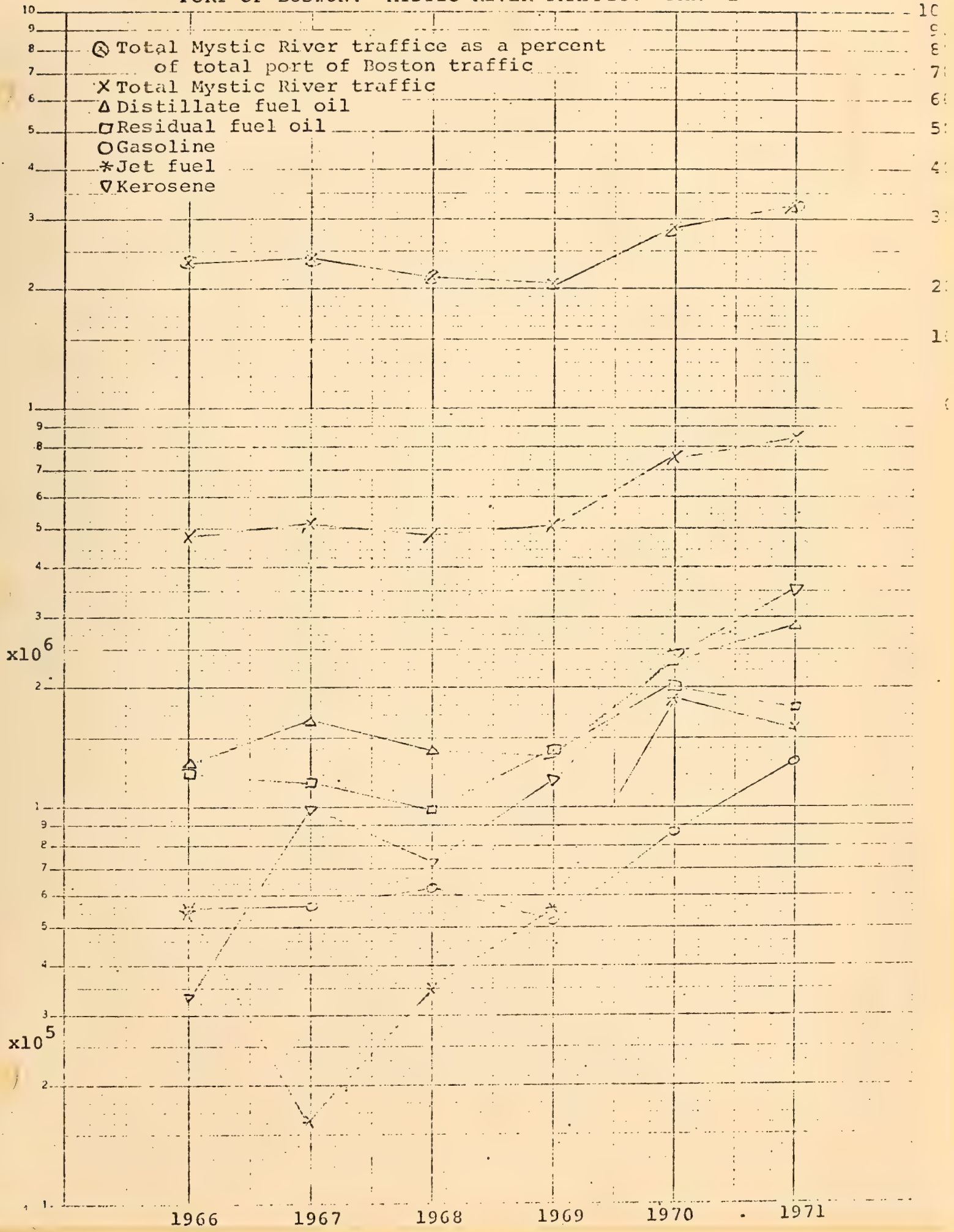
PORT OF BOSTON: MAIN WATERFRONT TRAFFIC: PART 2



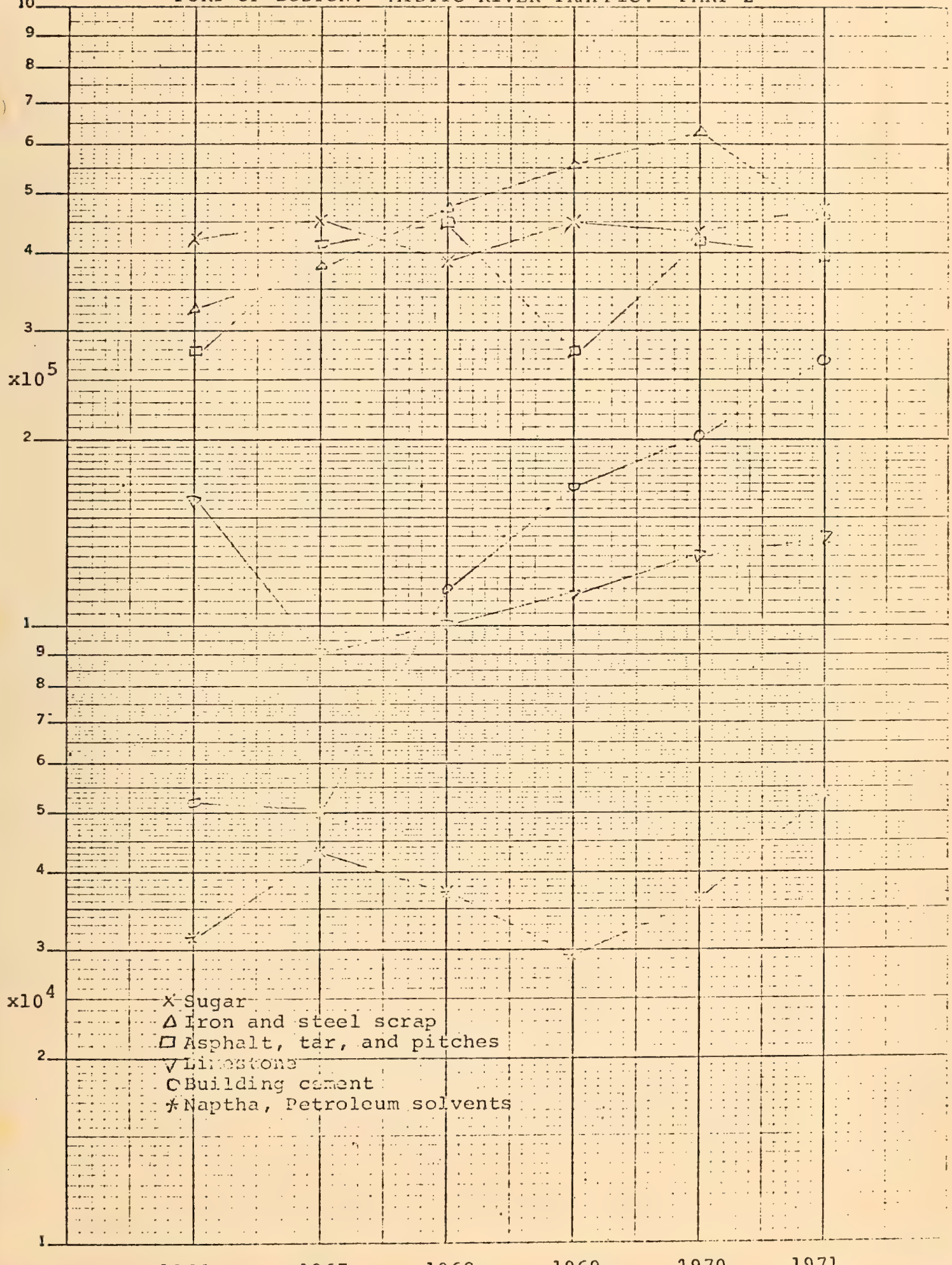
MYSTIC RIVER TRAFFIC

Mystic River, Mass. (Included in Port of Boston) - Section included: From mouth of river to Cradock Bridge, Medord, Mass. Controlling depth: From Mystic Bridge to Esso Dock 34.0 feet; from Esso Dock to American Sugar Refinery Dock 28.0 feet; From American Sugar Refinery Dock to upstream limit of 35-foot channel, 28.9 feet (1969); 14 feet in 20-foot channel (1969), 3 feet in 6-foot channel, 3 feet in 4-foot channel but narrowed in width (1946). Project depth: Channel 35 feet deep extending from the upper limit in 35-foot channel of Boston Harbor; to 100 feet downstream of Malden Bridge branch channels range from 4 to 20 feet.

PORT OF BOSTON: MYSTIC RIVER TRAFFIC: PART 1



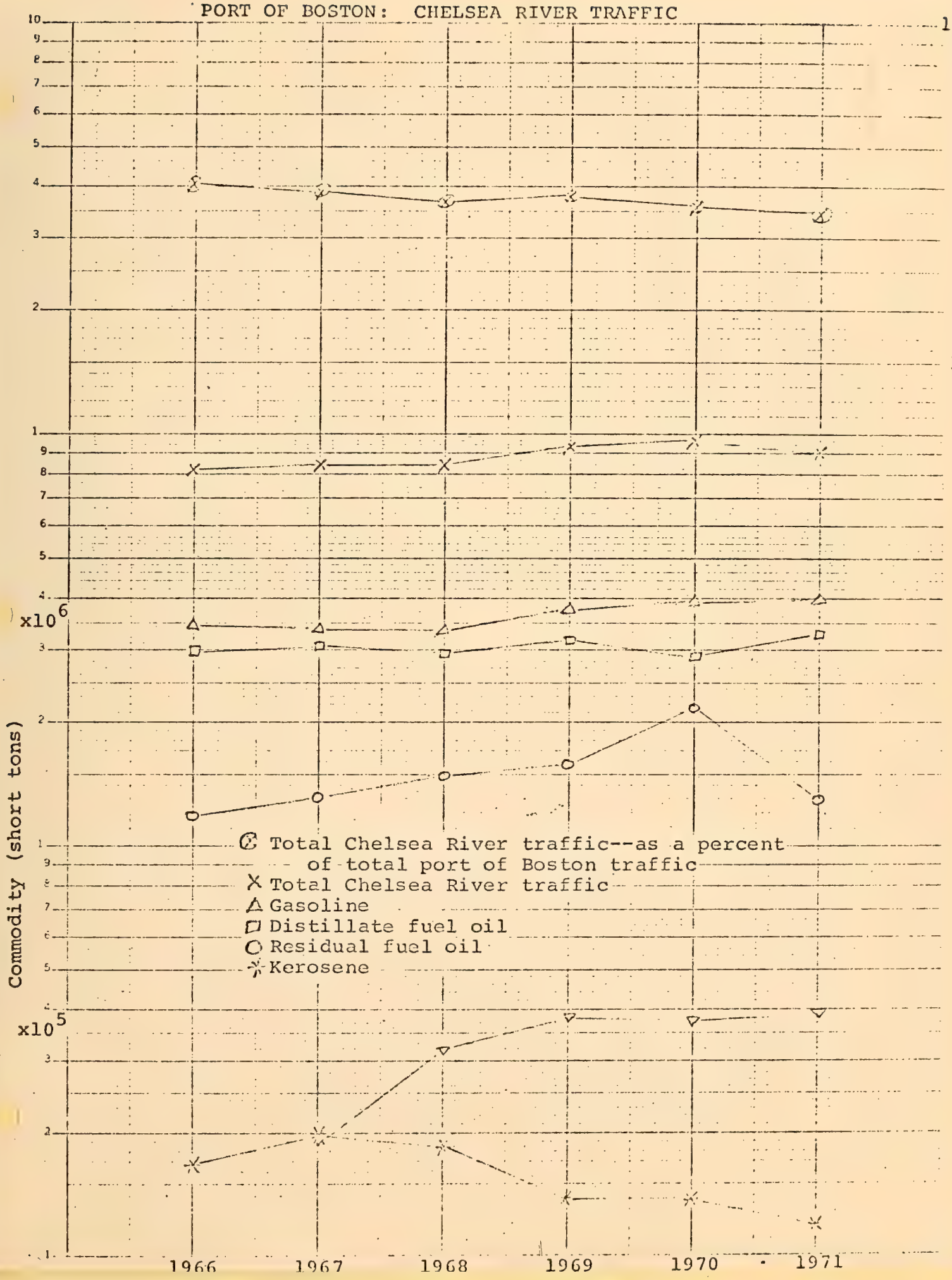
PORT OF BOSTON: MYSTIC RIVER TRAFFIC: PART 2



No. 19 1212 Semi Log 2 Cycles x 10 to Inch Made in U.S.A.
S E A M VERNON CO., ELIZABETH, N J 07208 A Division of THE WEAD CORPORATION

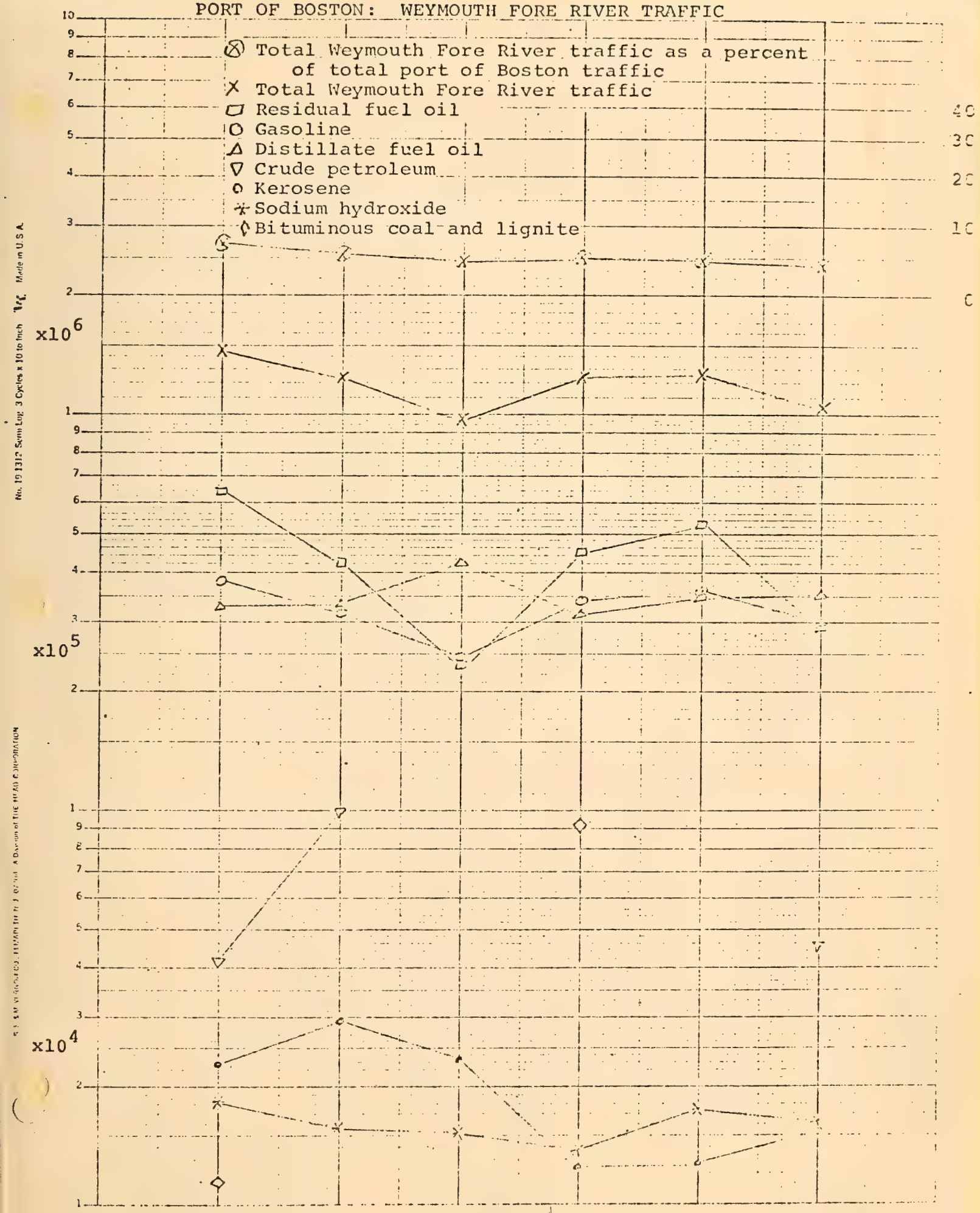
CHELSEA RIVER TRAFFIC

Chelsea River, Mass. (Included in Port of Boston) - Section included: From mouth to about 2.6 miles upstream. Controlling depth: From McArdle Bridge to Chelsea Street Bridge 29.4 feet; from Chelsea Street Bridge to turning basin 35.0 feet (1968). Project depth: 30 feet at mean low water from the mouth of the river to a point opposite the Hartol Oil Company terminal thence 8.4 feet deep to the B.&M.R.R. (Eastern Division Bridge).


PORT OF BOSTON: CHELSEA RIVER TRAFFIC
Commodity (short tons)
x10^6
x10^5
100
90
80
70
60
50
40
30
20
10
0
Total Chelsea River traffic--as a percent of total port of Boston traffic
Total Chelsea River traffic
Gasoline
Distillate fuel oil
Residual fuel oil
Kerosene
1966
1967
1968
1969
1970
1971

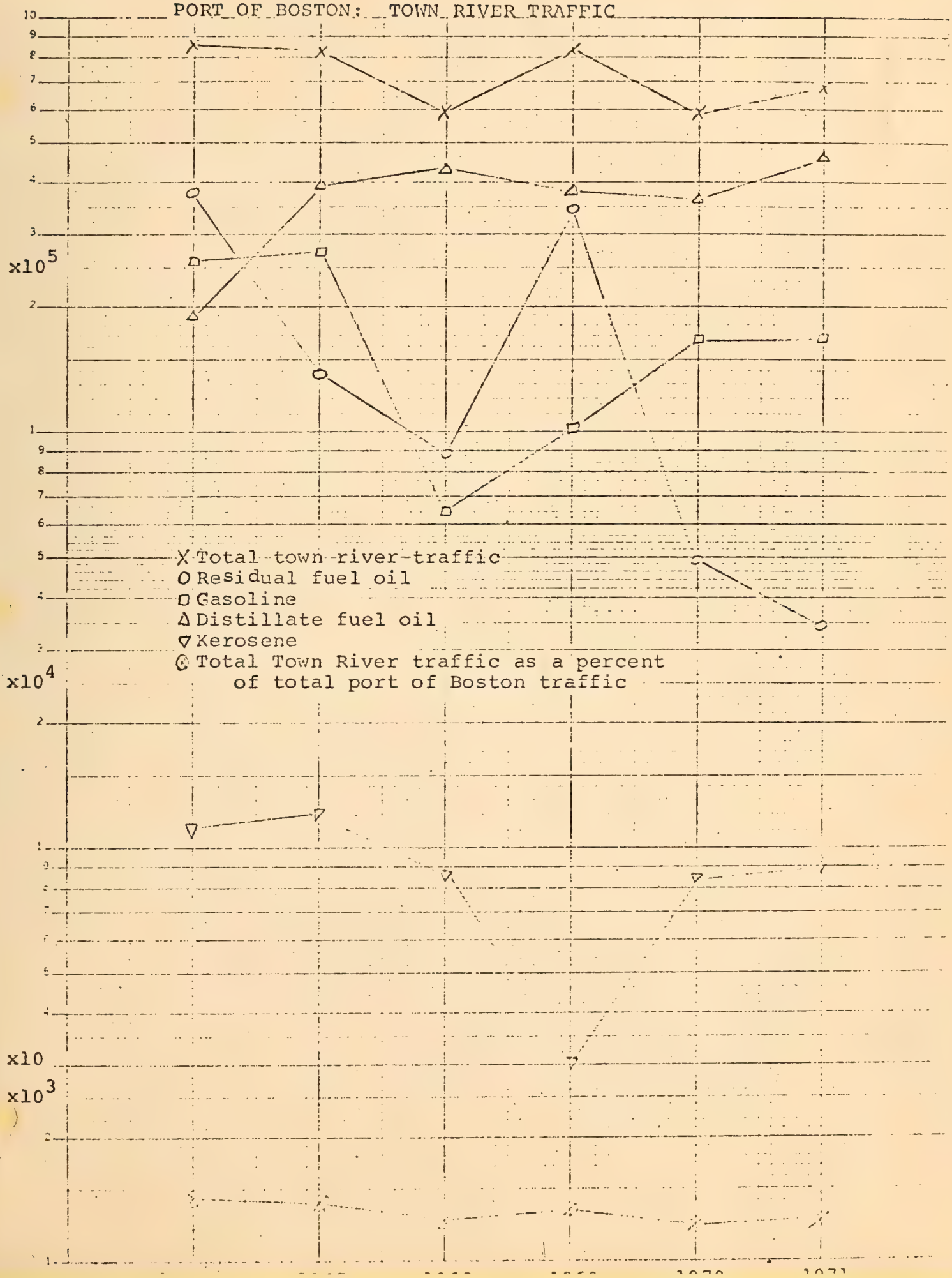
WEYMOUTH FORE RIVER TRAFFIC

Weymouth Fore River, Mass. (Included in Port of Boston) -
Section included: From mouth to head of navigation.
Controlling depth: 30 feet in the 30-foot channel (1960).
Project depth: 32 feet in ledge; 30 feet in other materials from deep water in Boston Harbor via Nantasket Gut and Hingham Bay to a point about 2,500 feet above Fore River Bridge; 27 feet in channel between Nut and Peddocks Islands.


PORT OF BOSTON: WEYMOUTH FORE RIVER TRAFFIC
Total Weymouth Fore River traffic as a percent of total port of Boston traffic
Total Weymouth Fore River traffic
Residual fuel oil
Gasoline
Distillate fuel oil
Crude petroleum
Kerosene
Sodium hydroxide
Bituminous coal and lignite
x10^6
x10^5
x10^4
40
30
20
10
0

TOWN RIVER AND FORT POINT CHANNEL TRAFFIC

Town River, Mass. (Included in Port of Boston) - Section included: From confluence with Weymouth Fore River, for about 1.5 miles to head of navigation. Controlling depth: 20.0 feet in the 27-foot channel, to the downstream end of Baker's Basin limit (1968); and 22 feet in the 24-foot turning basin (1968). Project depth: 27 feet at mean low water from Weymouth Fore River to Quincy Oil Company terminal, with a turning basin of 24 feet depth; thence 15 feet to just below Quincy Light and Power Company plant.


PORT OF BOSTON: TOWN RIVER TRAFFIC
x10^5
x10^4
x10
x10^3
X Total town-river-traffic
O Residual fuel oil
□ Gasoline
Δ Distillate fuel oil
▽ Kerosene
Total Town River traffic as a percent of total port of Boston traffic
30
20
10
0

Distribution of Cargo-Flow Over Boston Piers

	1971	1970	1969	1968	1967	1966	1965
Total	26,156,517	26,867,918	24,818,746	22,610,760	21,549,086	20,287,217	19,854,685
Main Waterfront	8,127,853	8,753,209	9,167,389	8,235,678	6,775,647	5,564,908	5,417,371
%	31.0	32.5	36.9	36.4	31.4	37.4	27.2
Chelsea River	9,081,582	9,612,424	9,326,035	8,371,768	8,398,805	8,144,877	7,326,847
%	34.7	35.7	37.5	37.0	38.9	40.1	36.9
Mystic River	8,411,185	7,595,277	5,092,001	4,827,304	5,120,959	4,773,985	4,368,981
%	32.1	28.2	20.5	21.3	23.7	23.5	22.0
Weymouth F.R.	1,037,792	1,287,190	1,236,125	960,005	1,228,407	1,461,036	1,729,425
%	3.9	4.7	4.9	4.2	5.6	7.2	8.7
Town River	682,657	591,524	838,974	598,917	825,838	855,859	955,399
%	2.6	212	3.3	2.6	3.8	4.2	4.8

Main Waterfront (Short Tons)

	1971	1970	1969	1968	1967	1966
Total	8,127,853	8,753,209	9,167,389	8,235,678	6,775,669	5,654,909
Residual Fuel Oil	3,782,057	5,510,817	5,277,089	5,167,466	3,607,494	2,759,573
Distillate Fuel Oil	2,150,997	1,399,799	2,178,389	1,244,972	1,453,987	1,184,075
Jet Fuel	256,461	167,176	301,431	138,196	178,015	195,527
Gasoline	347,469	216,914	233,123	119,431	152,880	258,406
Lumber	86,353	67,593	85,006	96,285	101,510	109,562
Kerosene	180,116	206,680	188,271	134,460	91,995	24,914
Sugar	56,546	33,504	32,200	50,207	34,856	15,915
Leather and Leather Products	52,499	49,827	33,287	43,741	31,204	25,196
Motor Vehicle Parts and Equipment	53,684	49,349	29,833	37,969	53,684	24,737
Iron and Steel Products	135,627	126,142	121,511	180,121	146,295	132,794
Waste(scrap) Materials	65,551	68,557	58,827	170,173	206,269	76,490
Salt	261,937	221,106	109,871	116,876	11,761	35,139

Chelsea River (Short Tons)

	1971	1970	1969	1968	1967	1966
Total	9,081,582	9,612,424	9,326,035	8,371,867	8,398,805	8,144,877
Gasoline	3,962,023	3,975,199	3,849,195	3,410,657	3,396,647	3,492,762
Distillate Fuel Oil	3,266,646	2,885,409	3,158,341	2,914,531	3,128,123	2,986,285
Residual Fuel Oil	1,291,255	2,150,887	1,597,533	1,492,733	1,312,816	1,171,249
Jet Fuel	396,523	377,927	381,642	318,171	195,929	97,175
Kerosene	120,771	138,709	139,342	184,994	199,049	109,955

Mystic River (Short Tons)

	1971	1970	1969	1968	1967	1966
Total	8,411,185	7,595,277	5,092,001	4,827,304	5,120,959	4,773,985
Distillate Fuel Oil	2,864,036	2,328,052	1,347,158	1,392,599	1,653,317	1,290,573
Residual Fuel Oil	1,775,131	2,011,989	1,374,211	983,384	1,137,849	1,235,414
Gasoline	1,300,476	871,479	516,832	621,392	562,089	551,761
Sugar	476,649	432,060	449,673	388,911	449,868	420,196
Iron and Steel Scrap	472,260	636,654	558,077	473,138	382,206	327,380
Asphalt, Tar, and Pitches	395,610	421,807	277,586	450,632	412,816	279,275
Kerosene	351,073	242,395	116,321	72,020	98,523	33,373
Building Cement	271,205	202,541	168,622	116,259	50,405	52,120
Jet Fuel	157,784	190,864	56,433	35,015	16,222	55,249
Lime Stone	141,235	130,046	113,859	100,373	91,766	161,424
Naptha, Petroleum Solvents	53,402	36,495	29,654	37,273	43,574	30,809
Crude Petroleum					54,307	47,782
Bit. Coal & Lignite						128,625

Town River (Short Tons)

	1971	1970	1969	1968	1967	1966
Total	682,657	591,524	838,974	598,917	825,838	855,859
Distillate Fuel Oil	461,036	366,270	381,475	433,912	398,536	190,512
Gasoline	167,379	167,254	100,253	64,198	271,082	257,861
Residual Fuel Oil	34,331	49,514	349,319	88,305	139,246	379,471
Kerosene	8,948	8,486	3,032	8,598	12,044	11,086

Weymouth Fore River (Short Tons)

	1971	1970	1969	1968	1967	1966
Total	1,037,792	1,287,190	1,236,125	960,005	1,228,497	1,461,036
Distillate Fuel Oil	356,835	351,147	318,003	423,803	336,927	328,844
Residual Fuel Oil	296,181	535,101	452,185	236,999	425,328	640,434
Gasoline	298,368	362,242	343,282	249,602	315,868	382,737
Crude Petroleum	45,955	--	--	--	99,532	40,458
Sodium Hydroxide	16,150	17,391	13,717	15,082	15,891	18,134
Kerosene	15,266	12,565	12,490	23,226	29,112	22,728
Coal & Lignite	--	--	92,451	--	--	11,627

APPENDIX B

PIERS, DOCKS AND WHARVES IN THE PORT OF BOSTON

List of Piers, Wharves - Boston Harbor

East Boston, Main Ship Channel

1. Rice Wharf
2. Rev-lyn Contracting Co. Wharf
3. General Boat Service Pier
4. Bethlehem Steel Corp., Boston Yard, Pier No. 5
5. " " " " " Pier No. 4
6. " " " " " Pier No. 3
7. " " " " " Pier No. 2
8. " " " " " Pier No. 1
9. East Boston, Pier 5
10. East Boston, Pier 4
11. East Boston, Pier 3
12. East Boston, Pier 1
13. Sumner Engineering & Machine Corp. Pier
14. Boston Fuel Transportation, South Pier
15. Boston Fuel Transportation, North Pier
16. Bromfield Corp., Lower Pier
17. Bromfield Corp., Center Pier
18. Bromfield Corp., Upper Pier
19. Bromfield Corp., Marine Railway Pier
20. Bromfield Corp., North Pier
21. General Ship & Engine Works, Pier 1 South
22. General Ship & Engine Works, Pier 2
23. Boston Tow Boat Co., South Pier

24. Boston Tow Boat Co., Wharf

25. Boston Tow Boat Co., North Pier

East Boston, left bank, Chelsea River

26. Ellis Wharf

27. Perini Corp., Marine Division, West Pier

28. Perini Corp., Marine Division, Center Pier

29. Perini Corp., Marine Division, East Pier

30. State Fuel Co. Wharf

31. Mobil Oil Corp. Wharf

32. Metropolitan Sewer Wharf

Revere

33. Atlantic Richfield Co., Pier

34. Sunoco Pier

35. Union Oil Co. Pier

Chelsea, right bank, Chelsea River

36. Gulf Oil Corp., Tanker Wharf

37. Gulf Oil Corp., Barge Wharf

38. American Oil Co. Wharf

39. Cities Service Oil Co. Wharf

40. Seaboard Construction Co., Pier

41. A.A. Hersey Pier

42. Texaco Pier

43. Quincy Oil Co. Wharf

44. Eastern Minerals Pier

45. Eastern Minerals Wharf

46. Munro Pier 1

47. Munro Pier 2

48. Munro Pier 3

49. Munro Pier 4

50. Munro Pier 5

Everett

51. Metropolitan Petroleum Co. Wharf

52. Marquette Cement Manufacturing Co., Wharf

Everett, left bank, Mystic River

53. Humble Oil & Refining Co., Everett Terminal Wharf

54. Prolerized New England Co., East Sulphur Wharf

55. Prolerized New England Co., Scrap Metal Wharf

56. Union Carbide Corp., West Chemical Wharf

57. Boston Edison Co., Mystic Station No. 200 Wharf

58. Monsanto Chemical Corp., Acid Wharf

59. Monsanto Chemical Corp., Wharf

Malden, left bank, Malden River

60. Morton Oil Co. Wharf

Medford, right bank, Malden River

61. Wellington Trealty Corp. Wharf

62. Areoc Loading Station

Somerville, right bank, Mystic River

63. Chevron Oil Co. Wharf

64. Pennsylvania Oil Co. Wharf

65. Massachusetts Bay Transportation

Charlestown, right bank, Mystic River

66. American Sugar Co., Raw Sugar Wharf

67. Revere Sugar Refinery Wharf

68. Revere Sugar Refinery Oil Pier

69. Atlantic Cement Co. Pier

70. Wiggens Terminals, Mystic River Wharf No. 51

71. Mystic Wharf

a.) Schiavone & Sons, Inc.

b.) J.F. Moran Dock

72. U.S. Gypsum Co. Wharf

Charlestown, Main Ship Channel

73. Mass. Port Authority, Mystic Piers Nos. 48, 49, 50.

74. Mass. Port Authority, Mystic Pier No. 1

Charlestown

75. Mass. Port Authority, Hoosac Pier No. 1

Cambridge

76. Chevron Oil Co. Wharf

77. Cambridge Electric Light Co. Wharf

78. Cambridge Gas Co. Wharf

Boston City Front, right bank, Charles River

79. General Services Administration Wharf

80. Boston Harbor Police Wharf

Boston City Front, Main Ship Channel

81. U.S. Coast Guard Pier No. 1

82. U.S. Coast Guard Pier No. 2

83. U.S. Coast Guard Pier No. 3

84. Battery Wharf

85. City Fireboat Wharf

86. Lincoln Wharf

87. Lewis Wharf, North Pier

88. Lewis Wharf, South Pier

89. Commercial Wharf, North Pier

90. Commercial Wharf, South Pier

91. Eastern Packet Pier and Wharf

92. T-Wharf

93. Long Wharf

94. Central Wharf

95. India Wharf

Boston City Front, Main Ship Channel (cont.)

96. Rowes Wharf

97. Otis Wharf

98. U.S. Appraisers Stores Wharf

South Boston, east side, Fort Point Channel

99. Atlas Terminal Stores

100. Farrell's Dock & Terminal Co. Wharf

101. New York, New Haven and Hartford Railroad, River Wharf

102. Ross Towboat Co. Pier

South Boston, Main Ship Channel

103. Fan Yard Wharf

104. South Boston Pier No. 1

105. South Boston Pier No. 2

106. South Boston Pier No. 4

107. Paul's Lobster Co. Wharf

108. Commonwealth South Boston Pier No. 5

109. Commonwealth South Boston Pier No. 6

110. South Boston Fish Piers

111. Boston Army Base Terminal, Oil Wharf

112. Boston Army Base Terminal, Berths No.1, 2, 3(North Pier)

South Boston, north side, Reserved Channel

113. Boston Army Base Terminal, Berths No. 4, 5,(South Pier)

114. " " " " Berth No. 6

115. " " " " Berth Nos. 7, 8, 9.

116. " " " " East portion of Berth No. 10

117. " " " " West portion of Berth No. 10

118. James D. Mahoney Pier

South Boston, South side, Reserved Channel

119. Boston Edison Co., South Boston Oil Barge Wharf

120. Boston Edison Co., South Boston L Street Coal Dock

121. Mass. Bay Transportation Authority,
Reserved Channel Wharf

122. White Fuel Oil Corp., South Boston Barge Wharf

123. White Fuel Corp., South Boston Tanker Wharf

124. White Fuel Corp., South Boston Wharf

125. Castle Island Terminal, Berth No. 11

126. " " " Berth Nos. 12, 13

127. " " " Berth Nos. 14, 15

South Boston, southwest side, Main Ship Channel

128. Castle Island Terminal, Berth No. 16

South Boston, southeast side, Main Ship Channel

129. Castle Island Terminal, Berth No. 17

Dorchester, left bank, Neoponset River

130. Gulf Oil Corp., Dorchester Bulk Plant Wharf

131. City of Boston, Dorchester Dumping Station Wharf

132. O.G. Kelley & Co. Wharf

133. James D. Shea Wharf

134. Metropolitan Petroleum Co. of Mass. Wharf

Quincy, right bank, Neoponset River

135. Murray & Tregurtha Pier

136. Boston Boat & Engine Co. Pier

Quincy, north side, Town River

137. Quincy Adams Marine Basin Pier

Quincy, south side, Town River

138. John J. Duane, Lumber Yard Wharf

139. Quincy Lumber Co. Wharf

140. Quincy Oil Co., Plant No. 4,
Deepwater Oil Terminal Wharf

141. John J. Duane Co., Steel Yard Wharf

142. Lincoln Oil Co. Wharf

143. Harbor View Marina Wharf

144. Mobil Oil Corp., Quincy Terminal Wharf

Quincy, east side, Shipyard Point

145. Proctor & Gamble, Quincy Factory Wharf

Quincy, left bank, Weymouth Fore River

146. General Dynamics Corp., Quincy Yard, Pier No. 4

147. " " " " " Pier No. 1

148. " " " " " Pier No. 2

149. " " " " " Pier No. 3

Braintree, left bank, Weymouth Fore River

150. General Dynamics Corp., Quincy Yard,
Wet Basin No. 2, north side

151. General Dynamics Corp., Quincy Yard,
Wet Basin No. 2, south side

152. Cities Service Oil Co., East Braintree Tanker Dock

Weymouth, right bank, Weymouth Fore River

153. Boston Edison Co., Edgar Station Wharf

154. Boston Edison Co., Fore River Coal and Oil Wharf

Eastern Neck, left bank, Weymouth Back River

155. Lamont Associates Wharf

Hingham, right bank, Weymouth Back River

156. Hingham Industrial Center Pier

PORT AND HARBOR FACILITIES

LOCALITY	NUMBER OF WATERFRONT FACILITIES	MAP NO.	P.W.D. REF. NOS.
INNER HARBOR			
East Boston:			
Main Ship Channel.....	23	2	3-25
Chelsea River.....	7	2	26-32
Revere:			
Chelsea River.....	3	2	33-35
Chelsea:			
Chelsea River.....	15	2	36-50
Head of Main Ship Channel...	1	2	51
Everett:			
Island End River.....	1	3	52
Mystic River.....	7	3	53-59
Malden:			
Malden River.....	1	3	60
Medford:			
Malden River.....	2	3	61-62
Somerville:			
Mystic River.....	3	3	63-65
Charlestown:			
Mystic River.....	7	3	66-72
Main Ship Channel.....	2	3	73-74
Charles River.....	1	3	75
Cambridge:			
Lechmere Canal.....	1	3	76
Broad Canal.....	2	3	77-78
Boston:			
Charles River.....	2	3	79-80
Main Ship Channel.....	18	3	81-98
South Boston:			
Fort Point Channel.....	4	4	99-102
Main Ship Channel.....	10	4	103-112
Reserved Channel.....	15	4	113-127
Main Ship Channel.....	2	4	128-129
TOTAL FOR OUTER AND INNER HARBORS.....	156		

The list on the following page summarizes the piers, wharves, and docks described in this report by purpose for which used or type of service offered.

THE PORT OF BOSTON, MASS.

PURPOSE FOR WHICH USED	NO.
Cargo handling:	
Bulk cement	2
Chemicals, petrochemicals, and solvents	1
Construction materials and equipment	1
General cargo - in foreign and domestic trades	17 (1)
Gypsum rock, liquid sulphur, and sulphuric acid (one each)	3
Petroleum products	29
Raw sugar	2 (2)
Refuse	2
Salt	2
Steel, steel products, and scrap metal	3
Seafood	9
Vegetable oil, liquid caustic soda, and silicate of soda	1
Marine Services and Repairs:	
Mooring	37
Mooring in connection with repairs, conversions, and outfitting	31
Not used for handling waterborne commerce	4
Unused facilities at time of survey	12
TOTAL	156

(1) One is a containerized, general cargo terminal, and 3 also handle containerized cargo.
(2) One also receives fuel oil for plant consumption.

Waterfront facilities used exclusively by recreational craft are not included in this report.

A summary of the facilities engaged in handling general cargo is given on the following page.

SUMMARY OF GENERAL CARGO FACILITIES

MAP NO.	P.W.D. REF. NO.	OPERATOR	BERTHING SPACE (FEET)	DEPTHS ALONGSIDE AT MLW	TRANSIT SHEDS NUMBER	TRANSIT SHEDS CARGO SPACE (SQ.FT.)
		EAST BOSTON				
2	10	New York Central Railroad Co. Massachusetts Port Authority East Boston Pier 4	240.0 748.0 780.0	35 31 32	1	134,230
2	11	New York Central Railroad Co. Massachusetts Port Authority East Boston Pier 3	252.0 780.0 610.0	35 32 35	1	142,480
2	12	New York Central Railroad Co. Massachusetts Port Authority East Boston Pier 1	390.0 605.0 605.0	35 35 35	1	165,021
		CHARLESTOWN				
3	70	Wiggin Terminals, Inc. Wiggin Terminals, Mystic River Wharf No. 51	694.0 130.0 80.0	31-27 31-20 27	1(1)	88,000
3	74	Massachusetts Port Authority Massachusetts Port Authority, Mystic Pier No. 1	468.0 890.0 620.0	40 35 35	1	150,100
3	75	Massachusetts Port Authority Massachusetts Port Authority, Hoosac Pier No. 1	515.0 535.0 525.0	35 35-25 35-25	1	172,500
		SOUTH BOSTON				
4	108	Massachusetts Port Authority Commonwealth South Boston Pier No. 5	400.0 1,200.0 1,200.0	40 40 40	1	499,000(2)
4	112	Port Terminals, Inc. Massachusetts Port Authority Boston Army Base Terminal, Berths Nos. 1, 2, and 3 (North Pier)	964.0 351.7	35 35	1	172,450(3)
4	113	Port Terminals, Inc. Massachusetts Port Authority Boston Army Base Terminal, Berths Nos. 4 and 5 (South Pier)	973.5	35	1	172,450(4)
4	114(5)	Port Terminals, Inc. Massachusetts Port Authority Boston Army Base Terminal, Berth No. 6	540.3	35	-	-
4	115(5)	Port Terminals, Inc. Massachusetts Port Authority Boston Army Base Terminal, Berths Nos. 7, 8, and 9	1,641.0	35	1	310,000
4	116(5)	Port Terminals, Inc. Massachusetts Port Authority Boston Army Base Terminal, east portion of Berth No. 10	550.0	35	-	-
4	125	Wiggin Terminals, Inc. Massachusetts Port Authority Castle Island Terminal, Berth No. 11	730.0	35	-	-
4	126	Wiggin Terminals, Inc. Massachusetts Port Authority Castle Island Terminal, Berths Nos. 12 and 13	1,045.0	35	1(6)	150,000
4	127	Wiggin Terminals, Inc. Massachusetts Port Authority Castle Island Terminal, Berths Nos. 14 and 15	1,220	35	1(6)	220,000
4	128	Wiggin Terminals, Inc. Massachusetts Port Authority Castle Island Terminal, Berth No.16	610.0	35	-	-
4	129(7)	Sea-Land Service, Inc. Massachusetts Port Authority Castle Island Terminal, Berth No.17	500.0	35	-	-
		TOTAL.....	21,392.5	-	12	2,376,231

(1) Fumigation plant located in south end of transit shed.
(2) In addition, 119,000 square feet of dry storage space and 1,136,770 cubic feet of cold storage space used for public warehousing (See S.W. Ref. Nos. 24, 25, and 26).
(3) In addition, 3d floor and portion of 2d floor used as public storage warehouse (See S.W. Ref. No. 27).
(4) In addition, 3d floor and portion of 2d floor used as public storage warehouse (See S.W. Ref. No. 28).
(5) Also used for receipt and shipment of containerized cargo.
(6) Transit shed also used as storage warehouse (See S.W. Ref. No. 29).
(7) Containerized general cargo terminal.

PIERS, WHARVES, AND DOCKS

Corps of Engineers Dist Code No. 04701 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP	1 MAP NO. 1 Dock Code No. 137	2 MAP NO. 1 Dock Code No. 155	3 MAP NO. 2 Dock Code No. [illegible]
NAME	Rice Wharf.	Rev-Lyn Contracting Co. Wharf.	General Boat Service Pier.
LOCATION ON WATERFRONT	West side of Winthrop Road, between foot of Crystal Cove Avenue and Moore Street.	East Boston, west side of Belle Isle Inlet, adjacent to south side of Saratoga-Main Street Bridge.	Jeffries Point, East Boston, west side Ship Channel, approximately 400 feet east of foot of Jeffries Street.
OWNED BY	Fred B. Smith.	Rev-Lyn Contracting Co.	Valdemar Bang.
OPERATED BY	Various operators.	do.	do.
PURPOSE FOR WHICH USED	Receipt of lobsters, mooring of miscellaneous small craft.	Mooring company-owned floating equipment.	Mooring boat & boats and floating equipment; mooring small craft for repair.
TYPE OF CONSTRUCTION	Timber pile, timber-decked. U-shaped offshore wharf with 65- by 15-foot approach.	Part timber pile with timber deck and part timber bulkhead with solid fill.	Timber pile with part wood and part concrete deck; timber float on rock at face of pier.

DESCRIPTION		Face	Lower sides	Upper sides	Face	Lower side	Face	East side	West side
Dimensions	(Feet)	135-75-50	90 and 75	75 and 112	180	75	45	270	20
Depth Alongside at MLW	Do.	6	8-5	8-5	Dries.	Dries.	10	10	12-6
Usable Berthing Space	Do.	135-75-50	90 and 75	75 and 70	180	50	Float.	-	100
Width of Apron	Do.	Open.			Open.		Open.		
Height of Deck Above MLW	Do.	-			-		15		
Load Capacity per Sq.Ft.	(Lbs.)	-			-		-		
Lighted or Unlighted		Lighted.			Unlighted.		Unlighted.		
TRANSIT SHEDS		None.			None.		None.		
Number and Type of Construction									
Length and Width	(Feet)								
Height Inside	Do.								
Floor Area for Cargo	(Sq.Ft.)								
Load Capacity per Sq.Ft.	(Lbs.)								
Cargo Doors									
MECHANICAL HANDLING FACILITIES		None.			None.		One 10-ton, gasoline, crawler crane with 45-foot boom.		
RAILWAY CONNECTIONS		None.			None.		None.		
HIGHWAY CONNECTIONS		Via Shirley Street (marginal), asphalt, 30 feet wide.			Via Saratoga Street (arterial and access), asphalt, 40 feet wide, from Bennington Street.		Via Marginal Street (marginal), granite block, 30 feet wide.		
WATER SUPPLY (Available to Vessels)		-			None.		For ten vessels.		
ELECTRIC CURRENT (Available to Vessels)		-			None.		A.C. 110 volts, single-phase, 6 [illegible]		
FIRE PROTECTION (Other than City)		-			Hand extinguishers.		Hand extinguishers.		
REMARKS		Small building on rear of wharf approach.			Marine railway located adjacent to lower side; for [illegible] use only. Floating equipment moored at wharf rests on bottom at low tide.		One 100-ton marine railway located adjacent to inner end of west side.		

PIERS, WHARVES, AND DOCKS

East Boston, Main Ship Channel

Corps of Engineers Port Code No.: 00701 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	4 Dock Code No. 387	5 Dock Code No. 388	6 Dock Code No. 389
	Bethlehem Steel Corp., Boston Yard, Pier No. 5.	Bethlehem Steel Corp., Boston Yard, Pier No. 4.	Bethlehem Steel Corp., Boston Yard, Pier No. 3.
LOCATION ON WATERFRONT	Approximately 250 feet west of foot of Jeffries Street.	Approximately 450 feet west of foot of Jeffries Street.	Approximately 0.14 mile west of foot of Jeffries Street.
OWNED BY	Bethlehem Steel Corp., Boston Yard.	Bethlehem Steel Corp., Boston Yard.	Bethlehem Steel Corp., Boston Yard.
OPERATED BY	do.	do.	do.
PURPOSE FOR WHICH USED	Mooring vessels for repair, conversion, and outfitting.	Mooring vessels for repair, conversion, and outfitting.	East side: mooring vessels for repair, conversion, and outfitting; west side: mooring floating drydock.
TYPE OF CONSTRUCTION	Timber pile, concrete deck.	Outer 100 feet: timber pile, concrete deck; remainder: masonry bulkhead with concrete-surfaced solid fill.	Outer 60 feet: timber pile, timber deck; remainder: concrete piles, anchor piers and deck with timber fender on east side.

DESCRIPTION	Face	East side	West side	Face	East side	West side	Face	East side	West side
Dimensions (Feet)	20	140	230	20-20	380	100-45	24	560	420
Depth Alongside at MLW Do.	18	16-0	18-13	17	17-7	17	24	23-24	37.5
Usable Berthing Space Do.	20	20	225	20	380	100	-	580	Floating
Width of Apron Do.	Open.			Open.			Open.		Drydock
Height of Deck Above MLW Do.	15			15			15		No. 2
Load Capacity per Sq.Ft. (Lbs.)	-			50 and 300			400		
Lighted or Unlighted	Lighted.			Lighted.			Lighted.		
TRANSIT SHEDS	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height Inside Do.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									

MECHANICAL HANDLING FACILITIES	One 10-ton, diesel, mobile crane with 50-foot boom.	None.	Two diesel-electric, traveling, full-portal shipyard cranes, each with capacity of 15 tons at 60-foot radius and 5 tons at 90-foot radius.
RAILWAY CONNECTIONS	None.	None.	None.
HIGHWAY CONNECTIONS	Via private entrance to shipyard from Marginal Street (access and marginal), granite block, 30 feet wide.	Same as Ref. No. 4.	Same as Ref. No. 4.
WATER SUPPLY (Available to Vessels)	Through 2 1/2-inch hose connection.	Same as Ref. No. 4.	Same as Ref. No. 4.
ELECTRIC CURRENT (Available to Vessels)	A.C., 440 volts, 3-phase, 60-cycle; D.C., 110-220 volts.	Same as Ref. No. 4.	Same as Ref. No. 4.
FIRE PROTECTION (Other than City)	Plant fire truck, hydrants, hose, hand and cart extinguishers, and watchmen.	Same as Ref. No. 4.	Same as Ref. No. 4.
REMARKS	Graving Dock No. 4 located in rear between Piers Nos. 5 and 4.	-	Floating Drydock No. 2, capacity 10,000 tons, is moored along west side of pier.

PIERS, WHARVES, AND DOCKS

East Boston, Main Ship Channel

Corps of Engineers Port Code No. 00701 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	7 Dock Code No. 349	8 Dock Code No. 391	9 Dock Code No. 401
NAME	Bethlehem Steel Corp., Boston Yard, Pier No. 2.	Bethlehem Steel Corp., Boston Yard, Pier No. 1.	East Boston Pier 3.
LOCATION ON WATERFRONT	Approximately 0.16 mile west of foot of Jeffries Street.	Approximately 220 feet east of foot of Lamson Street extended.	At foot of Lamson Street extended.
OWNED BY	Bethlehem Steel Corp., Boston Yard.	Bethlehem Steel Corp., Boston Yard.	Massachusetts Port Authority.
OPERATED BY	do.	do.	New York Central Railroad Co.
PURPOSE FOR WHICH USED	East side: mooring floating drydock; west side: mooring vessels for repair, conversion, and outfitting.	Mooring vessels for repair, conversion, and outfitting.	Mooring vessels.
TYPE OF CONSTRUCTION	Steel pile, concrete deck.	Timber pile, timber deck.	Timber pile, timber deck.

DESCRIPTION	Face	East side	West side	Face	Southeast side	Northwest side	Face	Southeast side	Northwest side
Dimensions (Feet)	40	824	1,020	34	875	875	40	513	446
Depth Alongside at MLW Do.	30	41	20	30	30	30	30	30-12	10
Usable Berthing Space Do.	40	Floating	1,020	31	875	875	40	513	166
Width of Apron Do.	Open.	Drydock		Open.			Open.		
Height of Deck Above MLW Do.	16	No. 1		14 1/2			18		
Load Capacity per Sq.Ft. (Lbs.)	500			500			250		
Lighted or Unlighted	Lighted.			Lighted.			Unlighted.		
TRANSIT SHEDS	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height Inside Do.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									

MECHANICAL HANDLING FACILITIES	Two diesel-electric, traveling, full-portal shipyard cranes, each with capacity of 15 tons at 60- to 90-foot radius, 25 tons at 45- to 60-foot radius and 5 tons at 135-foot radius.	One diesel-electric, traveling, full-portal shipyard crane with capacity of 15 tons at 45- to 90-foot radius and 5 tons at 115-foot radius.	None.
RAILWAY CONNECTIONS	One 1,000-foot, surface track on pier joins additional plant trackage in rear; connects with New York Central Railroad.	One 865-foot, surface track on pier joins additional plant trackage in rear; connects with New York Central Railroad.	Two surface tracks on pier, total length 930 feet; connect with New York Central Railroad.
HIGHWAY CONNECTIONS	Via private entrance to shipyard, from Marginal Street (access and marginal), granite block, 30 feet wide.	Same as Ref. No. 7.	Via Terminal Street (marginal and access), asphalt, 30 feet wide, from Lewis Street (approach), asphalt, 40 feet wide.
WATER SUPPLY (Available to Vessels)	Through 4-inch lines with 2-, 2 1 2-, and 4-inch hose connections.	Through 2 1/2-inch hose connections.	None.
ELECTRIC CURRENT (Available to Vessels)	A.C., 440 volts, 3-phase, 60-cycle. D.C., 110-220 volts.	Same as Ref. No. 7.	A.C., 220 volts, 3-phase, 60-cycle.
FIRE PROTECTION (Other than City)	Plant fire trucks, hydrants, hose, and and cart extinguishers, and watchmen.	Same as Ref. No. 7.	Water tower, hydrants, hose and watchmen.
REMARKS	Floating Drydock No. 1, capacity 18,000 tons, is moored along east side of pier.	-	Trucks have access to pier. Timber fenders of pier along inner 250 feet of northeast side.

PIERS, WHARVES, AND DOCKS
East Boston, Main Ship Channel

Corps of Engineers Port Code No. 00201 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	10 Dock Code No. 408	11 Dock Code No. 413	12 Dock Code No. 417
NAME	East Boston Pier 4.	East Boston Pier 3.	East Boston Pier 1.
LOCATION ON WATERFRONT	Approximately 0.33 mile east of foot of Lewis Street.	Approximately 0.26 mile east of foot of Lewis Street.	Approximately 500 feet east of foot of Lewis Street.
OWNED BY	Massachusetts Port Authority.	Massachusetts Port Authority.	
OPERATED BY	Mass. Port A.	Mass. Port A.	Mass. Port A
PURPOSE FOR WHICH USED			Receipt and shipment of general cargo in foreign and domestic trades; receipt of liquid latex and vegetable oils.
TYPE OF CONSTRUCTION	Timber pile, concrete deck extending from concrete retaining walls with solid fill in center and portion of pier at outer end; 250-foot bulkhead at inner end of southeast side with 31- to 16-foot depths of water.	Timber pile, timber deck; 250-foot timber bulkhead at inner end of southeast side with 30-foot depth of water.	Concrete filled steel pipe pile with concrete deck; 160-foot timber pile, concrete-decked bulkhead apron at inner end of northeast side with 15-foot depth of water.

DESCRIPTION		Face	Southeast side	Northwest side	Face	Southeast side	Northeast side
Dimensions	(Feet)	252	780	610	390	605	605
Depth Alongside at MLW	Do.	35	32	35	35	35	35
Usable Berthing Space	Do.	252	780	610	390	605	605
Width of Apron	Do.	25	10	22	20	25	25
Height of Deck Above MLW	Do.	20			15.9		
Load Capacity per Sq.Ft.	(Lbs.)	250			600		
Lighted or Unlighted		Lighted.			Lighted.		
TRANSIT SHEDS							
Number and Type of Construction		One - 1 and 2 story, steel frame, part metal and part asbestos covered; wood floors.			One - clear-span steel frame, 6-foot high concrete wall topped by asbestos siding; concrete floor.		
Length and Width	(Feet)	611.5 by 220			585 by 340		
Height Inside	Do.	20, 1st floor; 8, 2d floor.			20		
Floor Area for Cargo	(Sq.Ft.)	94,640, 1st floor; 47,840, 2d floor.			165,021		
Load Capacity per Sq.Ft.	(Lbs.)	250, 1st floor; 125, 2d floor.			600		
Cargo Doors		Shipside: continuous 14- by 24-foot doors; others: (See Remarks).			Shipside: twenty-six, 15- by 16-foot; others: six, 25- by 18- and two, 14- by 22-foot.		
MECHANICAL HANDLING FACILITIES		Three electric elevators in transit shed. Stevedoring equipment available as required.			One electric vertical-lift bridge over depressed tracks inside shed. Stevedoring equipment available as required.		
RAILWAY CONNECTIONS		Two depressed tracks, separated by fire wall, through center of transit shed, total length 1,500 feet; connect with New York Central Railroad.			Two depressed tracks through center of transit shed, total length 760 feet and one surface track on southeast and northeast aprons, total length 1,170 feet; all connect with New York Central Railroad.		
HIGHWAY CONNECTIONS	Via Terminal Street (marginal and access), asphalt, 80 feet wide from Lewis Street (approach), asphalt, 40 feet wide.	Same as Ref. No. 10.			Same as Ref. No. 10.		
WATER SUPPLY (Available to Vessels)					Through 2- and 2 1/2-inch lines with hose connections.		
ELECTRIC CURRENT (Available to Vessels)					Same as Ref. No. 10.		
FIRE PROTECTION (Other than City)					Same as Ref. No. 10.		
REMARKS					A 6-inch pipeline system for receipt of liquid latex and vegetable oils extends from shipside aprons to 12-car tank loading rack located inside transit shed. Two track platforms recessed inside shore end of shed. Trucks have access to aprons and to interior of shed. Approximately 3.2 acres of open storage area in rear on opposite side of Terminal Street.		

PIERS, WHARVES, AND DOCKS

East Boston, Main Ship Channel

Corps of Engineers Port Code No. 00701 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	13 Dock Code No. 452	14 Dock Code No. 453	15 Dock Code No. 454
NAME	Sumner Engineering & Machine Corp. Pier.	Boston Fuel Transportation, South Pier.	Boston Fuel Transportation, North Pier.
LOCATION ON WATERFRONT	Sumner Street, below foot of New Street.	New Street, below foot of Maverick Street.	New Street, above foot of Maverick Street.
OWNED BY	Doran Confectionery Co., Inc.	Boston Fuel Transportation, Inc.	Boston Fuel Transportation, Inc.
OPERATED BY	Sumner Engineering & Machine Corp.	do.	do.
PURPOSE FOR WHICH USED	Mooring vessels for repair.	Mooring company-owned vessels for repair.	Mooring company-owned vessels for repair.
TYPE OF CONSTRUCTION	Part masonry and part timber bulkhead with solid fill; fronted by timber pile, timber-decked extension.	Timber pile, timber deck; 100-foot bulkhead wharf at inner end of upper side.	Lower side and outer 216 feet of pier timber pile, timber deck, remaining part of upper side; masonry bulkhead with paved solid fill.

DESCRIPTION	Face	Northwest side	Face	Lower side	Upper side	Face	Lower side	Upper side
Dimensions (Feet)	45	400	42	365-30	270+20	84	280+20	216-100-265
Depth Alongside at MLW Do.	15	15-0	25-20	25	20	20-17.5	20	21.5-17.5
Usable Berthing Space Do.	-	400	42	365+30	270+20	84	280	216-100
Width of Apron Do.	Open.		Open.			Open.		
Height of Deck Above MLW Do.	14		15			14 1/2		
Load Capacity per Sq.Ft. (Lbs.)	-		-			-		
Lighted or Unlighted	Unlighted.		Lighted.			Lighted.		
TRANSIT SHEDS	None.		None.			None.		
Number and Type of Construction								
Length and Width (Feet)								
Height Inside Do.								
Floor Area for Cargo (Sq.Ft.)								
Load Capacity per Sq.Ft. (Lbs.)								
Cargo Doors								
MECHANICAL HANDLING FACILITIES	None.		None.			None.		
RAILWAY CONNECTIONS	None.		None.			None.		
HIGHWAY CONNECTIONS	Via Sumner Street (marginal), granite block, 40 feet wide.		Via Nea Street (marginal), asphalt, 25 feet wide, from Maverick Street (approach), asphalt, 30 feet wide.			Same as Ref. No. 14.		
WATER SUPPLY (Available to Vessels)	Through one 2 1/2-inch line.		None.			None.		
ELECTRIC CURRENT (Available to Vessels)	A.C., 220 volts, 3-phase, 60-cycle; 20-kilowatt generator and converter.		None.			None.		
FIRE PROTECTION (Other than City)	Water line.		Fire hose; all of operator's vessels are equipped with fire pumps and fittings.			Same as Ref. No. 14.		
REMARKS	Heat for vessels under repair is supplied by two 20-horsepower steam boilers in ship building in rear. Fuel oil for boilers stored in 2,000-gallon tank on pier; 133-foot slip on northwest side.		-			-		

PIERS, WHARVES, AND DOCKS
East Boston, Main Ship Channel

U.S. Army Engineers Port Code No. 00701 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	16 Dock Code No. 466	17 Dock Code No. 467	18 Dock Code No. 469
OWNED	Bromfield Corp., Lower Pier.	Bromfield Corp., Center Pier.	Bromfield Corp., Upper Pier.
LOCATION ON WATERFRONT	Border Street at Central Square, approximately 375 feet above foot of Decatur Street.	Border Street at Central Square, approximately 750 feet below foot of Lexington Street.	Border Street at Central Square approximately 650 feet below foot of Lexington Street.
OWNED BY	Bromfield Corp.	Bromfield Corp.	Bromfield Corp.
OPERATED BY	do.	do.	do.
PURPOSE FOR WHICH USED	Mooring vessels for repair.	Mooring vessels for repair	Mooring vessels for repair.
TYPE OF CONSTRUCTION	Masonry bulkhead, solid fill with timber pile, timber-decked pier extension.	Timber pile, timber-decked pier extending from timber bulkhead with solid fill.	Timber pile, timber-decked pier extending from timber bulkhead with solid fill.

DESCRIPTION	Face	Lower side	Upper side	Face	Lower side	Upper side	Face	Lower side	Upper side
Dimensions (Feet)	7-15-40	90-100-195	75-220	35	350	140	9	135	400
Depth Alongside at MLW Do.	25	25-10	25-10	23	23-0	23-0	23	23-0	23-0
Usable Berthing Space Do.	-	90+100+195	75-220	-	350	140	-	135	400
Width of Apron Do.	Open.			Open.			Open.		
Height of Deck Above MLW Do.	17			14			14		
Load Capacity per Sq.Ft. (Lbs.)	-			200, on fill.			200, on fill.		
Lighted or Unlighted	Lighted.			Unlighted.			Unlighted.		
TRANSIT SHEDS	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height Inside Do.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									
MECHANICAL HANDLING FACILITIES	None.			None.			None.		
RAILWAY CONNECTIONS	None.			None.			None.		
HIGHWAY CONNECTIONS	Via Border Street (marginal), granite block, 30 feet wide.			Same as Ref. No. 16.			Same as Ref. No. 16.		
WATER SUPPLY (Available to Vessels)	Through one 3-inch line.			None.			None.		
ELECTRIC CURRENT (Available to Vessels)	None.			None.			None.		
FIRE PROTECTION (Other than City)	Hand extinguishers.			None.			None.		
REMARKS	-			Upper side forms slip with lower side of Ref. No. 18.			-		

PIERS, WHARVES, AND DOCKS
East Boston, Main Ship Channel

Corps of Engineers Port Code No. 00701 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	19 Dock Code No. 470			20 Dock Code No. 471			21 Dock Code No. 472		
NAME	Bromfield Corp., Marine Railway Pier.			Bromfield Corp., North Pier.			General Ship & Engine Works, Pier 1 South.		
LOCATION ON WATERFRONT	Border Street, below foot of Lexington Street.			Border Street, at foot of Lexington Street.			Border Street, north of foot of Lexington Street.		
OWNED BY	Bromfield Corp.			Bromfield Corp.			General Ship & Engine Works, Inc.		
OPERATED BY	do.			do.			do.		
PURPOSE FOR WHICH USED	Service pier for marine railway.			Mooring vessels for repair.			Mooring vessels for outfitting and repair.		
TYPE OF CONSTRUCTION	Timber pile, timber-decked pier; 150-foot bulkhead at inner end of upper side of pier.			Outer 214 feet: timber pile, timber deck; remaining inner portion: part timber and part steel sheet pile retaining walls with paved solid fill.			Timber pile, timber-decked pier with timber retaining walls, solid fill, at inner end.		
DESCRIPTION	Face	Lower side	Upper side	Face	Lower side	Upper side	Face	Lower side	Upper side
Dimensions (Feet)	7	225	325	40	529	314-215	62	90	360
Depth Alongside at MLW Do.	15	19-15	19-10	26	26	26-18	32	-	22-0
Usable Berthing Space Do.	-	325	325+150	40	529	314	62	-	360
Width of Apron Do.	Open.			Open.			Open and 0		
Height of Deck Above MLW Do.	18			14			14		
Load Capacity per Sq.Ft. (Lbs.)	300			400, on fill.			600		
Lighted or Unlighted	Unlighted.			Lighted.			Lighted.		
TRANSIT SHEDS	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height Inside Do.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									
MECHANICAL HANDLING FACILITIES	None.			One 35- and one 25-ton, diesel, mobile crane, each with 120-foot boom and 40-foot jib extension.			One diesel crawler crane with 90-ft jib boom, capacity 35 tons at 12-foot radius; one 15-ton, gasoline, crawler crane with 60-foot boom. One 5-ton, diesel, mobile crane with 60-foot boom; and one 2-ton, gasoline mobile crane with 20-foot boom.		
RAILWAY CONNECTIONS	None.			None.			None.		
HIGHWAY CONNECTIONS	Via Border Street (marginal), granite block, 30 feet wide.			Same as Ref. No. 19.			Same as Ref. No. 19.		
WATER SUPPLY (Available to Vessels)	None.			None.			Through one 3-inch line.		
ELECTRIC CURRENT (Available to Vessels)	A.C., 440 volts, 3-phase, 60-cycle; D.C., 115 volts.			None.			A.C., 110 volts, single-phase, [illegible] A.C., 220 volts, 3-phase, 60-cycle. D.C., 110-220 volts.		
FIRE PROTECTION (Other than City)	Hand extinguishers.			Hand extinguishers.			Hydrants and hand extinguishers.		
REMARKS	One 700-ton marine railway located adjacent to inner end of upper side. Remains of timber pier located below or parallel to lower side, at time of survey, plans called for remains to be removed.			-			Pier equipped with lines for supplying steam and water. Shop buildings located on pier.		

PIERS, WHARVES, AND DOCKS
East Boston, Main Ship Channel

Corps of Engineers Port Code No. 00701 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	22 Dock Code No. 479	23 Dock Code No. 481	24 Dock Code No. 482
NAME	General Ship & Engine Works, Pier 2.	Boston Tow Boat Co., South Pier.	Boston Tow Boat Co., Wharf.
LOCATION ON WATERFRONT	Border Street, between foot of Eutaw and White Streets extended.	Border Street, south of foot of White Street extended.	Border Street, at foot of White Street extended.
OWNED BY	General Ship & Engine Works, Inc.	Boston Tow Boat Co.	Boston Tow Boat Co.
OPERATED BY	do.	do.	do.
PURPOSE FOR WHICH USED	Mooring vessels for outfitting and repair.	Mooring company-owned towboats.	Mooring company-owned towboats for minor repairs.
TYPE OF CONSTRUCTION	Timber pile, timber-decked pier extending from timber bulkhead with solid fill.	Timber pile, concrete-decked pier extending from timber bulkhead with solid fill.	Steel sheet pile bulkhead, solid fill, with timber platform.

DESCRIPTION	Face	Lower side	Upper side	Face	Lower side	Upper side	Face	
Dimensions (Feet)	40	392	500	22	450	2??	187	
Depth Alongside at MLW (Ft.)	26	26	26-0	18	18-14	18-14	16	
Usable Berthing Space (Ft.)	40	392	350	22	365	350	100	
Width of Apron (Ft.)	Open.			Open.			Open.	
Height of Deck Above MLW (Ft.)	14			14			14	
Load Capacity per Sq.Ft. (Lbs.)	600			400			600	
Lighted or Unlighted	Lighted.			Unlighted.			Lighted.	
TRANSIT SHEDS	None.			None.			None.	
Number and Type of Construction								
Length and Width (Feet)								
Height Inside (Ft.)								
Floor Area for Cargo (Sq.Ft.)								
Load Capacity per Sq.Ft. (Lbs.)								
Cargo Doors								

MECHANICAL HANDLING FACILITIES	One electric, traveling, revolving, full-portal gantry crane with 100-foot boom; capacity 16 tons at 40-foot radius.	None.	One 5-ton, gasoline, mobile crane with 15-foot boom.
RAILWAY CONNECTIONS	None.	None.	None.
HIGHWAY CONNECTIONS	Via Border Street (marginal), granite block, 30 feet wide.	Same as Ref. No. 22.	Same as Ref. No. 22.
WATER SUPPLY (Available to Vessels)	Through one 3-inch line with 2 1/2-inch hose connections.	None.	Through one 2-inch line.
ELECTRIC CURRENT (Available to Vessels)	A.C., 110 volts, single-phase, 60-cycle; A.C., 220 volts, three-phase, 60-cycle; D.C., 110-220 volts.	None.	None.
FIRE PROTECTION (Other than City)	Hydrants and hand extinguishers.	Hydrants and 2 1/2-inch hose.	Hydrants and 2 1/2-inch hose.
REMARKS	Shipbuilding and launching ways are located in rear, parallel with lower and upper sides.	-	Small storage shed for equipment located in rear of wharf.

PIERS, WHARVES, AND DOCKS
East Boston

Corps of Engineers Port Code No. 00701 Boston Harbor, Mass. 00702

REFERENCE NUMBER ON MAP NO. 2	25 Dock Code No. 483	26 Dock Code No. 001	27 Dock Code No. 001
NAME	Boston Tow Boat Co., North Pier.	Ellis Wharf.	Perini Corp., Marine Division, West Pier.
LOCATION ON WATERFRONT	Main Ship Channel, Border Street, at foot of White Street extended.	Left bank of Chelsea River, adjacent to east side of the Andrew P. McArdle Bridge.	Left bank of Chelsea River, approximately 230 feet east of the Andrew P. McArdle Bridge.
OWNED BY	Boston Tow Boat Co.	W. H. Ellis.	Perini Corp.
OPERATED BY	do.	W. H. Ellis & Son Pier Building Co.	Perini Corp., and North Atlantic Dredging Co.
PURPOSE FOR WHICH USED	Mooring company-owned towboats.	Mooring company-owned floating equipment.	Mooring company-owned floating equipment.
TYPE OF CONSTRUCTION	Timber pile, timber deck.	Masonry bulkhead with solid fill.	Timber pile, timber-decked pier; 40-x130-foot masonry bulkhead at inner end of upper side.

DESCRIPTION	Face	Lower side	Upper side	Face	West side	Face	West side	East side
Dimensions (Feet)	2	340	370	180	30	8	410	470
Depth Alongside at MLW Do.	25	16-0	20	Dries	Dries	Dries	Dries	Dries
Usable Berthing Space Do.	20	340	330	180	-	8	410	470
Width of Apron Do.	Open.			Open.		Open.		
Height of Deck Above MLW Do.	14			14		14		
Load Capacity per Sq.Ft. (Lbs.)	Unknown.			-		-		
Lighted or Unlighted	Lighted.			Unlighted.		Unlighted.		
TRANSIT SHEDS	None.			None.		None.		
Number and Type of Construction								
Length and Width (Feet)								
Height Inside Do.								
Floor Area for Cargo (Sq.Ft.)								
Load Capacity per Sq.Ft. (Lbs.)								
Cargo Doors								

MECHANICAL HANDLING FACILITIES	None.	None.	None.
RAILWAY CONNECTIONS	None.	None.	None.
HIGHWAY CONNECTIONS	Via Border Street (marginal), granite block, 30 feet wide.	Via Bay Street (access), asphalt, 20 feet wide, from Meridian Street (arterial), asphalt, 40 feet wide.	Private gravel road, from Bay Street (access), asphalt, 20 feet wide.
WATER SUPPLY (Available to Vessels)	-	None.	None.
ELECTRIC CURRENT (Available to Vessels)	A.C., 110 volts, single-phase, 60-cycle; A.C., 220 volts, 3-phase, 60-cycle.	None.	None.
FIRE PROTECTION (Other than City)	Hydrants and 2 1.2-inch hose.	None.	None.
REMARKS	-	-	Shops and equipment storage yard in rear.

PIERS, WHARVES, AND DOCKS

East Boston, left bank, Chelsea River

Corps of Engineers Port Code No. 00202 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	28 Dock Code No. 004	29 Dock Code No. 005	30 Dock Code No. 011
NAME	Perini Corp., Marine Division, Center Pier.	Perini Corp., Marine Division, East Pier.	State Fuel Co. Wharf.
LOCATION ON WATERFRONT	Approximately 350 feet east of the Andrew P. McArdle Bridge.	Approximately 500 feet east of the Andrew P. McArdle Bridge.	Condor Street, between foot of Brooks and Putnam Streets extended.
OWNED BY	Perini Corp.	Perini Corp.	State Fuel Co., Inc.
OPERATED BY	Perini Corp. and North Atlantic Dredging Co.	Perini Corp. and North Atlantic Dredging Co.	do.
PURPOSE FOR WHICH USED	Mooring company-owned floating equipment.	Mooring company-owned floating equipment.	Receipt and shipment of petroleum products.
TYPE OF CONSTRUCTION	Timber pile, timber deck.	Timber pile, timber deck.	Timber pile, timber-decked offshore wharf with 52- by 15-foot approach extending from steel sheet pile bulkhead with solid fill.

DESCRIPTION	Face	West side	East side	Face	West side	East side	Face	West side	East side
Dimensions (Feet)	15	385	385	15	405	See Remarks	80	25	25
Depth Alongside at MLW Do.	8	6-0	12	12	12		20	-	-
Usable Berthing Space Lo.	-	385	385	-	405		200 w/dolphins		
Width of Apron Do.	Open.			Open.			Open.		
Height of Deck Above MLW Do.	14			14			15		
Load Capacity per Sq.Ft. (Lbs.)	-			-			-		
Lighted or Unlighted	Unlighted.			Unlighted.			Lighted.		
TRANSIT SHEDS	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height Inside Do.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									
MECHANICAL HANDLING FACILITIES	None (See Remarks).			None.			One 1 1/2-ton, hand-operated, A-frame derrick with 23-foot reach; used for handling hose.		
RAILWAY CONNECTIONS	None.			None.			None.		
HIGHWAY CONNECTIONS	Private gravel road, from Bay Street (access), asphalt, 20 feet wide.			Same as Ref. No. 28.			Via Condor Street (marginal), granite block, 30 feet wide.		
WATER SUPPLY (Available to Vessels)	Through one 1 1/2-inch line.			None.			None.		
ELECTRIC CURRENT (Available to Vessels)	A.C., 110 volts, single-phase, 60-cycle.			None.			A.C., 110 volts, single-phase, 60-cycle.		
FIRE PROTECTION (Other than City)	Hand extinguisher.			Hand extinguisher.			Foam system, hydrants, and hose.		
REMARKS	One electric, traveling, revolving gantry crane with 110-foot boom, capacity 7 1/2 at 25-foot radius, located in rear of bulkhead at inner end of pier.			Timber remains of pier adjacent to east side.			One 12-, four 8-, and one 6-inch pipelines extend from wharf to 15 steel storage tanks in rear, total capacity 595,238 barrels.		

PIERS, WHARVES, AND DOCKS

East Boston, left bank, Chelsea River.

Corps of Engineers Port Code No. 0702 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	31 Dock Code No. 040	32 Dock Code No. 052	33 Dock Code No. 053
NAME	Mobil Oil Corp. Wharf.	Metropolitan Sewer Wharf.	Atlantic-Richfield Co., Pier.
LOCATION ON WATERFRONT	Chelsea Street, adjacent to west side of Chelsea Street Bridge.	Adjacent to east side of Chelsea Street Bridge.	Revere, Lee Burbank Highway, approximately 0.87 mile above Chelsea Street Bridge.
OWNED BY	Mobil Oil Corp.	Commonwealth of Massachusetts.	Gibbs Oil Co.
OPERATED BY	do.	Metropolitan District Commission, Sewer Division.	Gibbs Oil Co., and Atlantic-Richfield Co.
PURPOSE FOR WHICH USED	Receipt and shipment of petroleum products; bunkering small vessels; loading barges for bunkering vessels at berth in harbor.	Not used.	Receipt and shipment of petroleum products.
TYPE OF CONSTRUCTION	Masonry bulkhead with solid fill; 400-foot center portion on timber relieving platform supported by timber piles extending 28 feet on lower and 20 feet on upper side.	Concrete bulkhead with solid fill.	Timber pile, timber-decked pier with catwalk extending 175 feet outward from face to two rectangular-shaped steel pile and concrete breasting dolphins

DESCRIPTION		31 Face			32 Face			33 Face	33 Lower side	33 Upper side
Dimensions	(Feet)	350-400-387			220			35	350-115-35	350-75-115-35
Depth Alongside at MLW	Do.	30			10-0			35	21-10	35-10
Usable Berthing Space	Do.	350-400-387			-			-	550 w/dolphs	550 w/dolphs
Width of Apron	Do.	Open.			-			Open.		
Height of Deck Above MLW	Do.	15			14			15		
Load Capacity per Sq.Ft.	(Lbs.)	1,000			-			500		
Lighted or Unlighted		Lighted.			Lighted.			Lighted.		
TRANSIT SHEDS		None.			None.			None.		
Number and Type of Construction										
Length and Width	(Feet)									
Height Inside	Do.									
Floor Area for Cargo	(Sq.Ft.)									
Load Capacity per Sq.Ft.	(Lbs.)									
Cargo Doors										

MECHANICAL HANDLING FACILITIES	31: One steel frame structure on wharf with electrically operated hoist; used for handling hose. 32: None. 33: One steel frame structure on pier with 25-foot boom and electrically operated hoist; used for handling hose.
RAILWAY CONNECTIONS	31: Two surface tracks in rear of property, total length 645 feet, connect with New York Central Railroad. 32: None. 33: Three surface tracks in rear of pier total length 1,200 feet; connect with rail tracks of Boston and Maine Corporation.
HIGHWAY CONNECTIONS	31: Via Chelsea Street (marginal and arterial), asphalt, 40 feet wide. 32: Via Chelsea Street (arterial), asphalt, 40 feet wide. 33: Via private road, from Lee Burbank Highway (marginal and arterial), asphalt, 6-lane highway, divided, 30 feet wide each side.
WATER SUPPLY (Available to Vessels)	31: Through two 2 1/2-inch hose connections. 32: None. 33: Through one 3-inch line.
ELECTRIC CURRENT (Available to Vessels)	31: A.C., 110 volts, single-phase, 60-cycle. 32: None. 33: A.C., 110 volts, single-phase, 60-cycle; A.C., 220 volts, 3-phase, 60-cycle.
FIRE PROTECTION (Other than City)	31: Foam system, salt water system, and fire boat connection. 32: Hand extinguishers. 33: Foam system, hydrants, and watermen.
REMARKS	31: Four 12-, two 10-, one 8-, twenty-five 6-, and one 4-inch pipelines extend from wharf to 78 steel storage tanks in rear, capacity 1,234,000 barrels. 32: - 33: Gibbs Oil Co.: two 12- and four 10- pipelines extend to 8 steel storage tanks in rear on opposite side of Lee Burbank Highway, total capacity 480,000 barrels. Atlantic-Richfield Co.: four 12-inch pipelines connect with additional pipelines at shore end of pier extending to 6 steel storage tanks in rear on opposite side of highway, total capacity 480,000 barrels.

PIERS, WHARVES, AND DOCKS
Chelsea River

Corps of Engineers Port Code No. 00702 Boston Harbor, Mass.

TRANSCE NUMBER ON MAP NO. 2	34 Dock Code No. 102			35 Dock Code No. 110			36 Dock Code No. 920		
	Sunoco Pier.			Union Oil Co. Pier.			Gulf Oil Corp., Tanker Wharf.		
LOCATION ON WATERFRONT	Revere, left bank of Chelsea River, approximately 0.92 mile above Chelsea Street Bridge.			Revere, left bank of Chelsea River, approximately 0.97 mile above Chelsea Street Bridge.			Chelsea, right bank of Chelsea River, approximately 0.50 mile above Chelsea Street Bridge.		
OWNED BY	Sun Oil Co.			Union Oil Co. of Boston.			Gulf Oil Corp.		
OPERATED BY	Sun Oil Co. and Northeast Petroleum Corp.			do.			do.		
PURPOSE FOR WHICH USED	Receipt and shipment of petroleum products.			Receipt and shipment of petroleum products.			Receipt and shipment of petroleum products; bunkering small vessels; loading barges for bunkering vessels at berth in harbor.		
TYPE OF CONSTRUCTION	Timber pile, timber-decked pier; two mooring dolphins extend from face in line with south and north sides.			Row of timber mooring dolphins connected by timber catwalk extending from shore.			Steel sheet pile bulkhead, fronted by timber fenders with approximately 75 feet of center portion solid filled; steel catwalk extends along rear of remaining lower and upper portions of bulkhead.		
DESCRIPTION	Face	South side	North side	South side	North side		Face		
Dimensions (Feet)	14	260-310	265-310	900-200	900-200		620		
Depth Alongside at MLW Do.	30	30-27	20-10	35	-		31		
Usable Berthing Space Do.	-	450 w/dolphs.	265	600	-		620		
Width of Apron Do.	Open.			Open.			Open.		
Height of Deck Above MLW Do.	11			15			15		
Load Capacity per Sq.Ft. (Lbs.)	500			-			-		
Lighted or Unlighted	Lighted.			Lighted.			Lighted.		
TRANSIT SHEDS	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height Inside Do.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									
MECHANICAL HANDLING FACILITIES	One 1 1/2-ton, fixed, hand-operated mast and boom derrick with 20-foot reach; used for handling hose.			One 1-ton, electric, mast and boom derrick with 15-foot reach; used for handling hose.			One electric, elevated, derrick-type structure with one 36-foot boom; used for handling hose.		
RAILWAY CONNECTIONS	Two surface tracks in rear of pier, total length 600 feet, connect with rail tracks of Boston and Maine Corporation.			One surface track in rear, total length 180 feet, connects with rail tracks of Boston and Maine Corporation.			Two surface tracks serve tank car loading rack in rear, total length 1,480 feet, connect with rail tracks of Boston and Maine Corporation.		
HIGHWAY CONNECTIONS	Via Lee Burbank Highway (marginal and arterial), asphalt, 6-lane, divided, 30 feet wide each side.			Same as Ref. No. 34.			Via plant road, from Eastern Avenue (marginal and arterial), concrete, 40 feet wide.		
WATER SUPPLY (Available to Vessels)	Through one 3-inch line.			Through one 6-inch line.			Through one 8-inch line with 2 1/2-inch hose connections.		
ELECTRIC CURRENT (Available to Vessels)	A.C., 110 volts, single-phase, 60-cycle.			A.C., 110 volts, single-phase, 60-cycle.			None.		
FIRE PROTECTION (Other than City)	Foam system and hydrants.			Foam system, hydrants, and salt water line.			Foam system, hydrants, and watchman.		
REMARKS	Sun Oil Co.: three 8-inch pipelines extend from pier to 8 steel storage tanks in rear on opposite side of Lee Burbank Highway, total capacity 117,000 barrels. Northeast Petroleum Corp.: three 8-inch pipelines extend from pier to 11 steel storage tanks in rear on opposite side of Lee Burbank Highway, total capacity 427,000 barrels.			Five 12-inch pipelines extend from pier to 15 steel storage tanks in rear on opposite side of Lee Burbank Highway, total capacity 1,975,900 barrels.			One 14- and five 12-inch pipelines extend from wharf to 16 steel storage tanks in rear, total capacity 1,592,608 barrels.		

PIERS, WHARVES, AND DOCKS

Chelsea, right bank, Chelsea River

Corps of Engineers Port Code No. 00702 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	37 Dock Code No. 9-0	38 Dock Code No. 945	39 Dock Code No. 9-2
NAME	Gulf Oil Corp., Barge Wharf.	American Oil Co. Wharf.	Cities Service Oil Co. Wharf.
LOCATION ON WATERFRONT	Approximately 0.34 mile above Chelsea Street Bridge.	Adjacent to east side of Chelsea Street Bridge.	Approximately 360 feet below Chelsea Street Bridge.
OWNED BY	Gulf Oil Corp.	American Oil Co.	Cities Service Oil Co.
OPERATED BY	do.	Northeast Petroleum Corp.	do.
PURPOSE FOR WHICH USED	Receipt and shipment of petroleum products; fueling fuel loading barges for bunkering vessels at berth in harbor.	Receipt and shipment of petroleum products; bunkering own vessels.	Receipt of petroleum products.
TYPE OF CONSTRUCTION	Irregular-shaped, timber pile, timber-decked offshore wharf with 24- by 12-foot timber approach.	One of offshore, timber pile, trestling dolphins; 45- by 25-foot, timber pile, concrete-decked loading platform with 36- by 10-foot approach; and four 30- by 60-foot, parallel, timber pile, timber-decked piers extending from part timber and part concrete (Continued under Remarks)	Part masonry and part steel sheet pile bulkhead with solid fill.

DESCRIPTION		Face	Lower side	Upper side	Faces of piers and platform	Face
Dimensions	(Feet)	3-25-128	3-21	6-6	30-30-45-30-30	300-350-675
Depth Alongside at MLW	Do.	35	-	-	32	30
Usable Berthing Space	Do.	156	-	-	790 w/dolphins, platform, and piers	1,025
Width of Apron	Do.	Open.			Open.	Open.
Height of Deck Above MLW	Do.	15			14	14
Load Capacity per Sq.Ft.	(Lbs.)	-			-	-
Lighted or Unlighted		Lighted.			Lighted.	Lighted.
TRANSIT SHEDS		None.			None.	None.
Number and Type of Construction						
Length and Width	(Feet)					
Height Inside	Do.					
Floor Area for Cargo	(Sq.Ft.)					
Load Capacity per Sq.Ft.	(Lbs.)					
Cargo Doors						

MECHANICAL HANDLING FACILITIES	Two hand-operated, mast and boom derricks, each with 15-foot reach; used for handling hose.	One electric, elevated, derrick-type structure on loading platform with 15-foot boom; and one hand-operated, mast and boom derrick with 30-foot boom on lower and upper piers. derricks are used for handling hose.	One 2-ton, hand-operated, mast and boom derrick with 30-foot reach; used for handling hose.
RAILWAY CONNECTIONS	None.	Two surface tracks serve tank car loading rack in rear of storage tanks, total length 1,300 feet; connect with New York Central Railroad Five surface tracks serve tank car loading racks on opposite side of Eastern Avenue; connect with rail tracks of Boston and Maine Corporation.	Two surface tracks serve tank car loading rack on opposite side of Marginal Street in rear of storage tanks, total length 400 feet; connect with New York Central Railroad.
HIGHWAY CONNECTIONS	Via plant road, from Eastern Avenue (marginal and arterial), concrete, 40 feet wide.	Same as Ref. No. 37.	Via private entrance, from Marginal Street (marginal and arterial), asphalt, 30 feet wide.
WATER SUPPLY (Available to Vessels)	None.	Through 2 1/2-inch hose connection.	Through one 3-inch line.
ELECTRIC CURRENT (Available to Vessels)	None.	None.	None.
FIRE PROTECTION (Other than City)	Foam system, hydrants, and watchmen.	Foam system, fireboat connection, hand extinguishers, and watchmen.	Foam system, hydrants, and watchmen.
REMARKS	Timber remains of former wharf along lower and upper sides. Two 10-, and four 8-inch pipelines extend from wharf to storage tanks described under Ref. No. 38.	bulkhead with solid fill; dolphins, outer ends of piers, and face of loading platform are in line. Eight 8-inch pipelines extend from loading platform to 15 steel storage tanks in rear, total capacity 387,935 barrels. Six 8-inch pipelines extend from upper pier and seven 8-inch pipelines from lower pier and trestle with pipelines extending from loading platform; piers are used as barge berths. Four additional tanks with total capacity of [illegible] barrels are connected by one 12- and one 10-inch pipeline to tanks described above.	Five 12-, one 10-, one 8- and one 6-inch pipelines extend from wharf to [illegible] storage tanks in rear, fifteen [illegible] tanks, total capacity 314,[illegible] barrels, used by operator for storage of [illegible] low grade, eight tanks, total capacity 3,570 barrels, leased to American Mineral Spirits Co., for storage of [illegible] and four tanks, total capacity, 1,260 barrels, not in use at time of survey.

PIERS, WHARVES, AND DOCKS

Chelsea, right bank, Chelsea River

Corps of Engineers Port Code No. 00702 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	40 Dock Code No. 979			41 Dock Code No. 941			42 Dock Code No. 988		
NAME	Seaboard Construction Co., Pier.			A. A. Hersey Pier.			Texaco Pier.		
LOCATION ON WATERFRONT	Marginal Street, foot of Highland Avenue.			Marginal Street, west of foot of Highland Street.			Marginal Street, foot of Shawmut Street.		
OWNED BY	Seaboard Construction Co.			A. A. Hersey, Inc.			Texaco, Inc.		
OPERATED BY	do.			do.			do.		
PURPOSE FOR WHICH USED	Mooring company-owned floating equipment.			Mooring company-owned floating equipment.			Receipt of petroleum products.		
TYPE OF CONSTRUCTION	Timber pile, part timber and part concrete deck.			Timber pile, timber-decked pier with timber bulkhead at inner end of east side.			Steel H-pile, concrete-decked wharf extending from steel sheet pile bulkhead with solid fill; two mooring dolphins in line with face.		
DESCRIPTION	Face	West side	East side	Face	West side	East side	Face	West side	East side
Dimensions (Feet)	50	290	570	50	235	244	60	30	30
Depth Alongside at MLW Do.	25	25-0	25-0	2	2-0	2-0	36	-	-
Usable Berthing Space Do.	-	-	180	50	235	244	270 w/dolphs		
Width of Apron Do.	Open.			Open.			Open.		
Height of Deck Above MLW Do.	14			15			20		
Load Capacity per Sq.Ft. (Lbs.)	-			600			-		
Lighted or Unlighted	Unlighted.			Lighted.			Lighted.		
TRANSIT SHEDS	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height Inside Do.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									
MECHANICAL HANDLING FACILITIES	One 5-ton, hand-operated, stiff-leg derrick with 30-foot reach.			One 2-ton, hand-operated, stiff-leg derrick with 30-foot reach.			One steel frame structure on wharf with electrically operated hoist for handling hose.		
RAILWAY CONNECTIONS	None.			None.			None.		
HIGHWAY CONNECTIONS	Via private entrance, from Marginal Street (marginal and arterial), asphalt, 30 feet wide.			Same as Ref. No. 40.			Same as Ref. No. 40.		
WATER SUPPLY (Available to Vessels)	None.			None.			Through 2 1 1/2-inch hose connections.		
ELECTRIC CURRENT (Available to Vessels)	None.			None.			None.		
FIRE PROTECTION (Other than City)	None.			Hand extinguishers.			Foam system, hydrants, and hand extinguishers.		
REMARKS	Timber grid on timber piling located at inner end of east side for repair of scows.			-			One 12-, one 10-, and five 8-inch pipelines extend from wharf to 7 steel storage tanks in rear, total capacity 257,000 barrels.		

PIERS, WHARVES, AND DOCKS

Chelsea, right bank, Chelsea River

Corps of Engineers Port Code No. 00702 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 2	43 Dock Code No. 994	44 Dock Code No. 996	45 Dock Code No. 994
NAME	Quincy Oil Co. Wharf.	Eastern Minerals Pier.	Eastern Minerals Wharf.
LOCATION ON WATERFRONT	Marginal Street, east of foot of Shurtleff Street.	Marginal Street, between foot of Shurtleff and Hawthorn Streets extended.	Adjacent to east side of the Andrew P. McArdle Bridge.
OWNED BY	Quincy Oil Co.	Texaco, Inc.	Texaco, Inc.
OPERATED BY	do.	Eastern Minerals, Inc.	Eastern Minerals, Inc.
PURPOSE FOR WHICH USED	Receipt of petroleum products by barge.	Receipt of salt.	Receipt of salt.
TYPE OF CONSTRUCTION	Row of offshore mooring dolphins with 30- by 8-foot timber pile, timber-decked approach extending from masonry bulkhead with solid fill.	Masonry retaining wall on face and steel sheet piling on east and west sides, all solid fill with concrete surface; 25 foot wide, timber pile, timber-decked extension along face.	Steel sheet pile bulkhead with concrete-surfaced solid fill.

DESCRIPTION	Row of mooring dolphins	Face	East side	West side	Face
Dimensions (Feet)	90	220	240	See Remarks	157
Depth Alongside at MLW Do.	12-13	25	-	-	17
Usable Berthing Space Do.	90	220	-	-	140
Width of Apron Do.	Open.	Open.			Open.
Height of Deck Above MLW Do.	14, at bulkhead.	14			14
Load Capacity per Sq.Ft. (Lbs.)	-	-			-
Lighted or Unlighted	Unlighted.	Unlighted.			Unlighted.
TRANSIT SHEDS	None.	None.			None.
Number and Type of Construction					
Length and Width (Feet)					
Height Inside Do.					
Floor Area for Cargo (Sq.Ft.)					
Load Capacity per Sq.Ft. (Lbs.)					
Cargo Doors					
MECHANICAL HANDLING FACILITIES	None.	Two diesel, crawler cranes, each with 85-foot booms; equipped with 2 1 2- and 3-cubic yard buckets.			Use of cranes described under Ref. No. 44.
RAILWAY CONNECTIONS	None.	None.			None.
HIGHWAY CONNECTIONS	Via private entrance, from Marginal Street (marginal and arterial), asphalt, 30 feet wide.	Same as Ref. No. 43.			Same as Ref. No. 43.
WATER SUPPLY (Available to Vessels)	None.	Through one 2 1/2-inch line.			None.
ELECTRIC CURRENT (Available to Vessels)	None.	None.			None.
FIRE PROTECTION (Other than City)	Foam system and hand extinguishers.	None.			None.
REMARKS	One 6- and one 4-inch pipelines extend from outer end of approach to 8 steel storage tanks, total capacity 23,800 barrels. Timber retains of wharf along east side of approach.	Open area in rear for storage of salt. Slip, 30 feet wide, on west side being filled in.			-

PIERS, WHARVES, AND DOCKS

Chelsea, right bank, Chelsea River

Corps of Engineers Port Code No. 00702 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP No. 2	46 Dock Code No. 508	47 Dock Code No. 509	48 Dock Code No. 511
NAME	Munro, Pier 1.	Munro, Pier 2.	Munro, Pier 3.
LOCATION ON WATERFRONT	Below the Andrew P. McArdle Bridge.	Foot of Winnisimmet Street, approximately 400 feet below the Andrew P. McArdle Bridge.	Approximately 600 feet below the Andrew P. McArdle Bridge.
OWNED BY	Munro Drydock, Inc.	Munro Drydock, Inc.	Munro Drydock, Inc.
OPERATED BY	do.	do.	do.
PURPOSE FOR WHICH USED	Mooring vessels for repair.	Mooring vessels for repair.	Mooring vessels for repair.
TYPE OF CONSTRUCTION	Timber pile, timber-decked pier extending from concrete bulkhead at inner end on south side and masonry bulkhead in line with north side.	Timber pile, timber deck.	Timber pile, timber deck.

DESCRIPTION	Face	Northwest side	Southeast side	Face	West side	East side	Face	West side	East side
Dimensions (Feet)	20	170	187	20	205	205	35	310	295
Depth Alongside at MLW Do.	19-11	19-5	11-0	32	28	32-1	28	28	28
Usable Berthing Space Do.	-	170	187	-	205	205	35	310	295
Width of Apron Do.	Open.			Open.			Open.		
Height of Deck Above MLW Do.	14			14			14		
Load Capacity per Sq.Ft. (Lbs.)	-			300			300		
Lighted or Unlighted	Unlighted.			Unlighted.			Unlighted.		
TRANSIT SHEDS	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height Inside Do.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									

MECHANICAL HANDLING FACILITIES	None.	None.	None.
RAILWAY CONNECTIONS	None.	None.	None.
HIGHWAY CONNECTIONS	Via private entrance, from Winnisimmet Street (access), brick, 25 feet wide.	Same as Ref. No. 46.	Same as Ref. No. 46.
WATER SUPPLY (Available to Vessels)	Through one 2-inch line.	Through one 4-inch line with 2 1 1/2-inch hose connections.	Through one 4-inch line with 2 1 1/2-inch hose connections.
ELECTRIC CURRENT (Available to Vessels)	A.C., 110-220 volts, single-phase 60-cycle; A.C., 440 volts, 3-phase, 60-cycle.	A.C., 110-220 volts, single-phase, 60-cycle; A.C., 440 volts, 3-phase, 60-cycle; D.C., 110-250 volts.	A.C., 110-220 volts, single-phase, 60-cycle; A.C., 440 volts, 3-phase, 60-cycle; D.C., 110-230 volts.
FIRE PROTECTION (Other than City)	Water line.	Water line.	Water line.
REMARKS	One 3,000-ton marine railway located adjacent to bulkhead at inner end of north side.	Pier widens to 45 feet at inner end. Northwest side of pier forms slip, 100 feet wide, with southeast side of Ref. No. 48.	Actual pier width 40 feet. Northeast side of pier forms slip, 100 feet wide, with southeast side of Ref. No. 47.

PIERS, WHARVES, AND DOCKS

Chelsea

Corps of Engineers Dist Code No. 00702 Boston Harbor, Mass. 00701

REFERENCE NUMBER ON MAP NO. 2	49 Dock Code No. 512	50 Dock Code No. 514	51 Dock Code No. 521
NAME	Munro Pier 4.	Munro Pier 5.	Metropolitan Petroleum Co. Wharf.
LOCATION ON WATERFRONT	Right bank of Chelsea River, approximately 750 feet below the Andrew P. McArdle Bridge.	Right bank of Chelsea River, approximately 0.20 mile below the Andrew P. McArdle Bridge.	Approximately 600 feet below the Maurice J. Tobin Mystic River Bridge, at head of Main Ship Channel.
OWNED BY	Munro Drydock, Inc.	Munro Drydock, Inc.	Metropolitan Petroleum Company of Massachusetts, Division of The Pittston Co.
OPERATED BY	do.	do.	do.
PURPOSE FOR WHICH USED	Mooring vessels for repair.	Service wharf for marine railway.	Receipt and shipment of petroleum products; loading barges for bunkering vessels at berth in harbor; bunkering tankers berthed at wharf.
TYPE OF CONSTRUCTION	Timber pile, timber deck.	Timber pile, timber deck.	Timber pile, timber-decked offshore wharf with 2 approaches, steel sheet pile bulkhead with solid fill adjacent to upper side parallel to face; all fronted by breasting dolphins. Barge slip in rear of lower part of wharf face formed by catwalk.

DESCRIPTION	49 Face	49 West side	49 East side	50 Face	50 South side		51 Face	51 Barge slip	51 Lower side
Dimensions (Feet)	35	305	315	225	25		215	150 by 45	35
Depth Alongside at MLW Do.	20	20	28	8-0	-		35	20	20
Usable Berthing Space Do.	35	100	315	See Remarks	-		500 w/dolphs	150	-
Width of Apron Do.	Open.			Open.			Open		
Height of Deck Above MLW Do.	14			14			14		
Load Capacity per Sq.Ft. (Lbs.)	-			-			-		
Lighted or Unlighted	Unlighted.			Unlighted.			Lighted.		
TRANSIT SHEDS	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height Inside Do.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									

MECHANICAL HANDLING FACILITIES	None.	None.	None.
RAILWAY CONNECTIONS	None.	None.	None.
HIGHWAY CONNECTIONS	Via private entrance, from Winnisimmet Street (access), brick, 25 feet wide.	Same as Ref. No. 49.	Via Broadway (approach), asphalt, 40 feet wide.
WATER SUPPLY (Available to Vessels)	Through one 4-inch line with 2 1/2-inch connections.	None.	Through one 4-inch line with 2 1/2-inch hose connections.
ELECTRIC CURRENT (Available to Vessels)	A.C., 110-220 volts, single-phase, 60-cycle; A.C., 440 volts, 3-phase, 60-cycle; D.C., 110-220 volts.	A.C., 110-220 volts, single-phase, 60-cycle; A.C., 440 volts, 3-phase, 60-cycle; D.C., 110-220 volts.	A.C., 110-220 volts, single-phase, 60-cycle.
FIRE PROTECTION (Other than City)	Water line.	None.	Foam system, hydrants, and hand extinguishers.
REMARKS	Actual pier width 40 feet.	One 1,000-ton, marine railway located adjacent to and parallel with face.	One 16- and four 8-inch pipelines extend from wharf to 13 steel storage tanks in rear, total capacity 579,100 barrels.

PIERS, WHARVES, AND DOCKS

Everett.

Corps of Engineers Port Code No. 00704 Boston Harbor, Mass. 00703

REFERENCE NUMBER ON MAP No. 2	52 Dock Code No. 932	53 Dock Code No. 942	54 Dock Code No. 048
NAME	Marquette Cement Manufacturing Co., Wharf.	Mobile Oil & Refining Co., Everett Terminal Wharf.	Proprietary Sulphate Co., East Sulphur Wharf.
LOCATION ON WATERFRONT	Right bank of Island End River at junction with Mystic River.	Left bank of Mystic River at junction with Island End River.	Left bank of Mystic River, approximately 2,000 feet below Malden Bridge.
OWNED BY	Allied Concrete Corp.	Humble Oil & Refining Co.	Hugo Neu Steel Products, Inc., and Proleride Transport Systems, Inc.
OPERATED BY	Marquette Cement Manufacturing Co.	do	Mystic Steamship Corp., a subsidiary of Eastern Gas and Fuel Associates.
PURPOSE FOR WHICH USED	Receipt of bulk cement by vessel.	Receipt and shipment of petroleum products; receipt of asphalt; bunkering and tankers berthed at wharf, and loading barges for bunkering vessels at berth in harbor.	Receipt of liquid sulphur.
TYPE OF CONSTRUCTION	Remains of timber pile, timber-decked wharf with 3-foot wide catwalk along face.	Offshore wharf: timber pile, part timber and part concrete deck 125- by 85-foot tanker dock at eastern side of wharf with 2 concrete breasting dolphins; and 90- by 55-foot barge dock at western side with 4 breasting dolphins. (Cont'd under Remarks.)	Timber pile, steel-decked, offshore wharf with 25' by 80'±' approach; fronted by 3 mooring dolphins; timber pile, concrete-capped breasting dolphins—each dolphin has steel pipe piling supporting timber fenders at face. (Cont'd under Remarks.)

DESCRIPTION		Face	Face	Face	East side	West side
Dimensions	(Feet)	250 × 142	125 and 90	80	30	30
Depth Alongside at MLW	Do.	18-20	42-37	26		
Usable Berthing Space	Do.	250	1,045 + dolphs.	820 + dolphs and Ref. Nos. 55 and 56		
Width of Apron	Do.	3	Open	Open		
Height of Dock Above MLW	Do.	14	15	22		
Load Capacity per Sq.Ft. (Lbs.)		-	750, tanker dock.	-		
Lighted or Unlighted		Lighted.	Lighted.	Lighted.		
TRANSIT SHED		None.	None.	None.		
Number and Type of Construction						
Length and Width	(Feet)					
Height Inside	Do.					
Floor Area for Cargo	(Sq.Ft.)					
Load Capacity per Sq.Ft.	(Lbs.)					
Cargo Doors						

MECHANICAL HANDLING FACILITIES	None.	One electrically operated, steel, hosehandling frame (sixteen 8"-foot hoses can be handled together or independently); two 1-ton pneumatic-operated, mast and boom derricks for handling hose, each with 2-ft of reach; and one electrically operated cargo boom with 50-foot reach.	None.
RAILWAY CONNECTIONS	None.	None.	Surface tracks in rear connect with New York Central Railroad and rail tracks of Boston and Maine Corporation.
HIGHWAY CONNECTIONS	Via private entrance from Beacham Street (access), asphalt, 30 feet wide, from Broadway (arterial), asphalt, 40 feet wide.	Via private entrance from River Street (access), asphalt, 30 feet wide, from Broadway (arterial), asphalt, 40 feet wide.	Via private entrances from Beacham and River Streets (access), asphalt, 30 feet wide, to Broadway (arterial), asphalt, 40 feet wide.
WATER SUPPLY (Available to Vessels)	None.	Through 2-inch line with hose connections.	Through hose line from 2 1 2-inch line on Scrap Metal wharf (Dock No. 557).
ELECTRIC CURRENT (Available to Vessels)	A.C., 110 volts, single-phase, 60-cycle; A.C., 220 volts, 3-phase, 60-cycle.	None.	None.
FIRE PROTECTION (Other than City)	None.	One 8-inch, high-pressure line, fire-boat connection, hydrants [illegible] and private hydrants and [illegible].	[illegible] wharf, total
REMARKS	Two 12-inch pipe lines extend from wharf to 6 [illegible] feet storage silos with 2 storage [illegible] stations, total capacity 105,000 barrels. Cement is received by self-unloading vessel at rate of 900 barrels per hour.	[illegible] dock has 235- by 20-foot [illegible] reaching [illegible] on [illegible] a heavy [illegible] connected [illegible] and extends [illegible] sides of dock to mooring dolphins. One 24-, two 16-, two 12-, two 8-, and two 6-inch pipelines extend from tanker dock and [illegible] storage capacity [illegible] two 10-, three 8-, and [illegible] pipelines extend from bar connect with pipelines on tanker dock.	

PIERS, WHARVES, AND DOCKS

Everett, left bank, Mystic River.

Corps of Engineers Port Code No. 00701 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 3	55 Dock Code No. 048	56 Dock Code No. 014	57 Dock Code No. [illegible]
NAME	Prolerized New England Co., Scrap Metal Wharf.	Union Carbide Corp., West Chemical Wharf.	Boston Edison Co., Mystic Station No. 2 Wharf.
LOCATION ON WATERFRONT	Approximately 2,000 feet below Malden Bridge.	Approximately 1,600 feet below Malden Bridge.	Approximately 350 feet below Malden Bridge.
OWNED BY	Hugo Neu Steel Products, Inc., and Proleride Transport Systems, Inc.	Eastern Marine Leasing Corp.	Boston Edison Co.
OPERATED BY	Prolerized New England Co.	Union Carbide Corp.	do.
PURPOSE FOR WHICH USED	Shipment of scrap metal.	Receipt of chemicals, petrochemicals, and solvents.	Receipt of fuel oil (during emergencies) for plant consumption.
TYPE OF CONSTRUCTION	Timber bulkhead, solid fill, with timber pile, concrete-decked extension; 6 rectangular-shaped, concrete-capped, breasting dolphins fronting Ref. Nos. 54 and 56 are in line with face of wharf.	Timber pile, timber-decked, offshore wharf; fronted by 3 rectangular-shaped, timber pile, concrete-capped breasting dolphins--each dolphin has steel pipe piling supporting timber fenders at face; timber catwalk extends along rear of dolphins from west side of Scrap Metal Wharf (Ref.No.55).	Steel sheet piling fronting concrete bulkhead with solid fill; timber mooring dolphins along face.

DESCRIPTION	55 Face	55 East side	55 West side	56 Face	56 East side	56 West side	57 Face	57	57
Dimensions (Feet)	320	80	15-25-40	50	15	15	140		
Depth Alongside at MLW Ft.	26	-	-	36-27	-	-	27-17		
Usable Berthing Space Ft.	92, w/Ref. Nos. 54 and 56.			820 w/dolphs; and Ref. Nos. 54 and 55.			140		
Width of Apron Ft.	Open.			Open.			Open.		
Height of Deck Above MLW Ft.	14			18			18		
Load Capacity per Sq.Ft. (Lbs.)	-			-			-		
Lighted or Unlighted	Lighted.			Lighted.			Lighted.		
TRANSIT SHEDS	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height Inside Ft.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									

MECHANICAL HANDLING FACILITIES	One steel loading tower for shredded scrap metal on wharf with hinged-cantilevered boom having 60-foot outboard reach; 6-foot wide, electric, belt-conveyor system extends from scrap metal hammer mill and open storage area in rear to loading chute at outer end of boom on tower. loading rate 600 tons per hour. one 35-ton, electric, traveling gantry crane on wharf with 90-foot boom and 87-inch diameter electric magnet.	None.	None.
RAILWAY CONNECTIONS	Surface tracks in rear connect with New York Central Railroad and rail tracks of Boston and Maine Corporation.	Same as Ref. No. 55.	None.
HIGHWAY CONNECTIONS	Via private entrances from Dexter and Rover Streets (access), asphalt, 30 feet wide, from Broadway (arterial), asphalt, 40 feet wide.	Same as Ref. No. 55.	Via private entrance from Broadway (arterial), asphalt, 40 feet wide.
WATER SUPPLY (Available to Vessels)	Through 2 1/2-inch line.	Through hose line from 2 1/2-inch line on Scrap Metal Wharf (Ref. No. 55).	Through one 3-inch line.
ELECTRIC CURRENT (Available to Vessels)	A.C., 110 volts, single-phase, 60-cycle.	None.	A.C., 110 volts, single-phase, 60-cycle; A.C., 220/440 volts, 3-phase, 60-cycle.
FIRE PROTECTION (Other than City)	Hydrants, hose, hand extinguishers, on loading tower, and watchmen.	A.D.T. service, hydrants, hose, hand extinguishers, and foam system.	Hydrants, hose, and watchmen.
REMARKS	Four 40-ton, diesel crawlers and two 35-ton, fixed, electric yard cranes transfer automobile bodies and scrap metal to feeder belt serving scrap metal hammer mill; shredded scrap metal is transferred from hammer mill to loading tower on wharf and to electric stacker with revolving boom at open storage area; diesel bulldozers transfer shredded scrap metal from open storage area to a ground-level receiving hopper serving conveyor system extending to loading tower on wharf.	Twenty-seven 4-inch pipelines extend from wharf to 27 oil storage tanks, total capacity 147,700 barrels. Additional storage available for approximately 147,000 barrels in railroad tank cars in rear.	Wharf is maintained on a standby basis for receipt of fuel oil during an emergency. One 8-inch pipeline extends from wharf to 2 storage tanks in rear, total capacity 55,000 barrels.

PIERS, WHARVES, AND DOCKS

U.S. of Engineers Port Code No.	00703 Boston Harbor, Mass.		00705
PERFORMANCE NUMBER ON MAP NO. 3	58 Dock Code No. 083	59 Dock Code No. 091	60 Dock Code No. 015
NAME	Monsanto Chemical Co., Acid Wharf.	Monsanto Chemical Co. Wharf.	Morton Oil Co. Wharf.
LOCATION ON WATERFRONT	Everett, left bank of Mystic River, at inner end of west side of basin between Malden and New York Central Railroad bridges.	Everett, left bank of Mystic River, west side of basin between Malden and New York Central Railroad bridges.	Malden, left bank of Malden River, adjacent to upper side of Medford Street Bridge.
OWNED BY	Monsanto Chemical Co.	Monsanto Chemical Co.	Morton Oil Co.
OPERATED BY	do.	do.	do.
PURPOSE FOR WHICH USED	Shipment of sulphuric acid by barge.	Not used for handling waterborne commerce.	Receipt of petroleum products by barge.
TYPE OF CONSTRUCTION	Timber pile, timber-decked, offshore wharf with 50- by 3-foot timber approach; timber mooring dolphins in line with face.	Timber pile, timber-decked, offshore wharf with 68- by 6-foot timber approach; timber mooring dolphins in line with face.	Masonry bulkhead, solid fill, with timber pile, timber-decked extension; mooring dolphins in line with face.

DESCRIPTION		Face	Lower side	Upper side	Face	Lower side	Upper side	Face
Dimensions	(Feet)	20	10	10	215	10	10	90
Depth Alongside at	Do.	17, MLW	-	-	18, MLW	-	-	10, pool level.
Usable Berthing Space	Do.	225 w/dolphs.	-	-	360 w/dolphs.	-	-	125 w/dolphs.
Width of Apron	Do.	Open.			Open.			Open.
Height of Deck Above	Do.	15, MLW			14, MLW			5.8, pool level above dam.
Load Capacity per Sq.Ft.	(Lbs.)	250			350			-
Lighted or Unlighted		Lighted			Lights in rear.			Unlighted.
TRANSIT SHEDS		None.			None.			None.
Number and Type of Construction								
Length and Width	(Feet)							
Height Inside	Do.							
Floor Area for Cargo	(Sq.Ft.)							
Load Capacity per Sq.Ft.	(Lbs.)							
Cargo Doors								
MECHANICAL HANDLING FACILITIES		None.			None.			None.
RAILWAY CONNECTIONS		Surface tracks in rear join additional plant trackage; connect with New York Central Railroad.			Same as Ref. No. 58.			None.
HIGHWAY CONNECTIONS		Via private entrance from Broadway (arterial), asphalt, 40 feet wide.			Same as Ref. No. 58.			Via Medford Street (approach), asphalt, 30 feet wide.
WATER SUPPLY (Available to Vessels)		None.			None.			None.
ELECTRIC CURRENT (Available to Vessels)		A.C., 110 volts, single-phase, 60-cycle.			A.C., 110 volts, single-phase, 60-cycle; A.C., 220 volts, 3-phase, 60-cycle.			None.
FIRE PROTECTION (Other than City)		Hydrants.			Hydrants.			Hand extinguishers.
REMARKS		One 6-inch pipeline extends from wharf to 2 steel, sulphuric acid storage tanks, total capacity 2,500 short tons.			Approximately 135,000 square feet of open storage space in rear.			Two 6-inch pipelines extend from wharf to 4 steel storage tanks in rear, total capacity 28,300 barrels.

PIERS, WHARVES, AND DOCKS

Corps of Engineers Port Code No. 00703 Boston Harbor, Mass. 00703

REFERENCE NUMBER ON MAP NO. 3	61 Dock Code No. 005	62 Dock Code No. 010	63 Dock Code No. [illegible]
NAME	Wellington Realty Corp. Wharf.	Areoc Loading Station.	Chevron Oil Co. Wharf.
LOCATION ON WATERFRONT	Medford, right bank of Malden River, approximately 1,500 feet below Medford Street Bridge.	Medford, right bank of Malden River, approximately 1,100 feet above Revere Beach Parkway Bridge.	Somerville, right bank of Mystic River, between Boston and Maine Corp., Eastern Division, and Mystic - ssex Avenue - Fellsway (Wellington Bridges.
OWNED BY	Wellington Realty Corp.	Russell J. Corey	Chevron Oil Co.
OPERATED BY	Not operated.	do.	do.
PURPOSE FOR WHICH USED	Not used for handling waterborne commerce.	Shipment of refuse by barge.	Receipt of petroleum products by barge.
TYPE OF CONSTRUCTION	Timber pile, timber-decked, T-head wharf, with 144- by 12-foot timber approach; timber mooring dolphins in line with face.	Solid-filled, inclined, truck ramp to steel span, timber-decked platform extending over barge berth underneath.	Timber pile, timber-decked, offset wharf with 130- by 19-foot timber approach; two timber mooring dolphins in line with face.

DESCRIPTION	Face	Lower side	Upper side	Face of bulkhead		Face	Lower side	Upper side
Dimensions (Feet)	12	6	6	300		80	5	5
Depth Alongside at Do.	10, pool level.	-	-	15, pool level.		See Remarks.	-	-
Usable Berthing Space Do.	130 w/dolphs.	-	-	300		130 w/dolphs.	-	-
Width of Apron Do.	Open			Open		Open		
Height of Deck Above Do.	12.3, pool level.			25, platform above pool level.		8.8, pool level.		
Load Capacity per Sq.Ft. (Lbs.)	-			-		-		
Lighted or Unlighted	Unlighted.			Unlighted.		Lighted.		
TRANSIT SHEDS	None.			None.		None.		
Number and Type of Construction								
Length and Width (Feet)								
Height Inside Do.								
Floor Area for Cargo (Sq.Ft.)								
Load Capacity per Sq.Ft. (Lbs.)								
Cargo Doors								

MECHANICAL HANDLING FACILITIES	None.	Two diesel crawler cranes, one with 90- and one with 65-foot booms; equipped with 1 1/2- and 3-cubic yard grab buckets; and one 3-cubic yard diesel front-end loader.	None.
RAILWAY CONNECTIONS	One surface track in rear of wharf serves warehouse; connects with rail tracks of Boston and Maine Corporation.	None.	One 600-foot surface track in rear of wharf; connects with rail tracks of Boston and Maine Corporation.
HIGHWAY CONNECTIONS	Via Commercial Street (access), asphalt, 20 feet wide, from Medford Street, 30 feet wide.	Via Corporation Way (access), asphalt, 30 feet wide, from Revere Beach Parkway (arterial).	Via private road (access), asphalt, 30 feet wide, from Ivy Street (approach), granite block, 30 feet wide.
WATER SUPPLY (Available to Vessels)	None.	None.	None.
ELECTRIC CURRENT (Available to Vessels)	None.	A.C., 110 volts, single-phase, 60-cycle; A.C., 220 volts, 3-phase, 60-cycle.	None.
FIRE PROTECTION (Other than City)	None.	Hand extinguishers, and river water pump and water line.	Hydrants, hose, and hand extinguishers at plant in rear.
REMARKS	1 brick warehouse located in rear.	At time of survey, plans were reported to have been made to rebuild loading facility with 20-foot depth of water alongside.	At time of survey, plans called for dredging alongside face of wharf to a depth of 12 feet at mean level. One 6-inch pipeline extends from wharf to 2 vertical and 3 horizontal, steel, storage tanks, total capacity 11,238 barrels.

PIERS, WHARVES, AND DOCKS
Right Bank, Mystic River.

Corps of Engineers Port Code No. 04201 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 3	64 Dock Code No. 891			65 Dock Code No. 923			66 Dock Code No. 913		
NAME	Pennsylvania Oil Co. Wharf.			Massachusetts Bay Transportation Authority Wharf.			American Sugar Co., Raw Sugar Wharf.		
LOCATION ON WATERFRONT	Somerville, between Boston and Maine Corp., Eastern Division bridge and Mystic River Dam (Amelia Earhart Dam).			Somerville, adjacent to upper side of Massachusetts Bay Transportation Authority Bridge.			Charlestown, foot of North Mead Street extended, approximately 0.40 mile below Malden Bridge.		
OWNED BY	Metropolitan District Commission			Massachusetts Bay Transportation Authority			American Sugar Co.		
OPERATED BY	Pennsylvania Oil Co.			do.			do.		
PURPOSE FOR WHICH USED	Receipt of petroleum products by barge.			Not used for handling waterborne commerce.			Receipt of raw sugar and fuel oil for plant consumption.		
TYPE OF CONSTRUCTION	Timber pile, timber-decked pier with 3-foot wide timber walkway extending from each side of outer end to 2 mooring dolphins in line with face.			Timber bulkhead with solid fill.			Concrete-filled, steel pipe pile, reinforced concrete-decked offshore wharf with 80- by 22-foot approach to lower end; timber fender system along face.		
DESCRIPTION	Face	Lower side	Upper side	Face			Face	Lower side	Upper side
Dimensions (Feet)	20	25	25	390			371	27	27
Depth Alongside at MLW Do.	8	-	-	5-0			30	-	-
Usable Berthing Space Do.	100 w/dolphins	-	-	300			371	-	-
Width of Apron Do.	Open.			Open			Open		
Height of Deck Above MLW Do.	15			14			18		
Load Capacity per Sq.Ft. (Lbs.)	-			250			250		
Lighted or Unlighted	Lighted.			Unlighted.			Lighted.		
TRANSIT SHEDS	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height Inside Do.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									
MECHANICAL HANDLING FACILITIES	None.			None.			Cranes on vessels unload bulk raw sugar into 3 electric, steel, traveling, receiving hoppers on wharf serving a 42-inch, level, electric belt conveyor extending along rear of face of wharf; capacity 675 short tons per hour. Raw sugar is transferred from upper end of belt conveyor on wharf by a covered, 42-inch, inclined, electric conveyor system extending via a transfer scale tower on shore to top of a large, circular, domed building with storage capacity of 30,000 short tons.		
RAILWAY CONNECTIONS	None.			Massachusetts Bay Transportation Authority surface track in rear connects with New York Central Railroad and rail tracks of Boston and Maine Corporation.			Plant trackage in rear connects with rail tracks of Boston and Maine Corporation.		
HIGHWAY CONNECTIONS	Via gravel road (access), from roadway to Mystic River Dam (Amelia Earhart), asphalt, 24 feet wide.			Via Arlington Avenue (access), asphalt, 29 feet wide, from Alford Street (Broadway) (arterial).			Via private plant entrance (access), from Medford Street (marginal), asphalt, 35 feet wide.		
WATER SUPPLY (Available to Vessels)	None.			None.			Through one 3- to 2-inch line.		
ELECTRIC CURRENT (Available to Vessels)	None.			None.			A.C., 110 volts, single-phase, 60-cycle; A.C., 440 volts, 3-phase, 60-cycle.		
FIRE PROTECTION (Other than City)	None.			Hydrants.			Hydrant and hose station on shore in rear.		
REMARKS	Two 6-inch pipelines extend from wharf to 2 steel storage tanks located approximately 1,600 feet in rear, total capacity 23,800 barrels.			Open area in rear of upper portion of wharf used for storing sand; lower portion of wharf is used during winter months for dumping snow into river.			Sugar is transferred from face building to plant via a covered, 42-inch, electric, belt-conveyor system. One 10-inch pipeline extends from wharf to 2 steel, fuel oil storage tanks in rear, total capacity 20,000 barrels.		

PIERS, WHARVES, AND DOCKS

Charlestown, Eight Locks, Mystic River

Chart of Boston Harbor, 1:10,000 (U.S. Coast and Geodetic Survey)

FEATURE NUMBER ON CHART NO. 3	67 Dock C or No. 2	68 Dock C or No. 1	69 Dock C or No. 3
NAME	Revere Sugar Refinery Wharf.	Revere Sugar Refinery Oil Pier.	Atlantic Cement Co. Pier.
LOCATION ON WATERFRONT	Foot of Sackville Street extended, approximately 0.54 mile below Malden Bridge.	Foot of Cook Street extended, approximately 0.60 mile below Malden Bridge.	Between foot of Alford and Linden Streets extended, approximately 0.66 mile below Malden Bridge.
OWNED BY	Revere Sugar Refinery	Revere Sugar Refinery	Atlantic Cement Co., Inc.
OPERATED BY	do.	do.	do.
PURPOSE FOR WHICH USED	Receipt of raw sugar.	Receipt of fuel oil for plant consumption.	Receipt of bulk cement by self-unloading barges.
TYPE OF CONSTRUCTION	Wharf: concrete-filled steel pipe pile, concrete deck, Rapid Roller system. Wharf is located at outer end of solid-filled pier structure consisting of part steel sheet pile and concrete retaining walls with timber pile, timber-decked extensions along upper and lower sides.	Remains of timber pile, timber-decked pier 240 feet easterly from and at inner end of lower side.	Circular steel sheet-pile cells of the Lustron type piles with steel sheet piles and concrete decks, timber-decked pier along upper side with timber pile, timber-decked pier along lower side.
DESCRIPTION	Face of wharf / Lower side of wharf and pier / Upper side of wharf and pier	Face / Lower side / Upper side	Face / Lower side / Upper side
Dimensions (feet)	150 / 60 x 60 / 60 x 60	85 - 23 / 283 / 220	103 / 535 / 60
Depth alongside at MLW (ft.)	30 / 30-34 / 30-32	2-24 / 13-5 / 23	2-21 / 22 / 24-32
Usable berthing space (ft.)	450 / - / -	- / 150 / -	- / 450 / -
Width of Apron (ft.)	Open.	Open.	Open.
Height of face above MLW (ft.)	16	14	16.1
Load Capacity per Sq.Ft. (lbs.)	500 and 250, wharf.	-	500
Lighting or Obstruction	Lighted.	Partly lighted.	Lighted.
TRANSIT SHED	None.	None.	None.
Number and Type of Construction			
Length and Width (feet)			
Rail at Apron (ft.)			
Floor Area for Cargo (Sq.Ft.)			
Load Capacity per Sq.Ft. (lbs.)			
Cargo Doors			
MECHANICAL HANDLING FACILITIES	Two 6-ton electric, traveling, whirling towers, each equipped with 50-foot hinged-cantilevered boom, 60-foot outboard reach and 4-foot traveling gear, hoists, slewing gear, two 200 short tons each. Tower right-of-way with receiving hopper, 12-inch belt-conveyor system extending along rear of wharf. Fuel is transferred from upper end of belt conveyor on wharf by 4-ton electric, locomotive crane to ship via transfer station at point to suit berth at the capacity of [illegible]	None.	None.
RAILWAY CONNECTIONS	Plant railroad is connected with rail trunks of Boston and Maine Corporation.	Same as Ref. No. 67.	Two surface tracks on pier, total length 1,100 feet, join Revere plant trackage in rear of pier. Trunk rail tracks of Boston and Maine Corporation.
HIGHWAY CONNECTIONS	Via private road on pier (concrete), asphalt, 20 feet wide to private entrance on Medford Street (Carlstad), asphalt, 50 feet wide.	Via private entrance from Medford Street (Carlstad), asphalt, 50 feet wide.	Via private road (concrete), asphalt, 20 feet wide to Medford Street (Carlstad), asphalt, 50 feet wide.
WATER SUPPLY (Available at Wharf)	Through 2 1/2-inch hose connection.	Through two 2 1/2-inch hose connections on fuel oil line.	Through fresh line.
ELECTRICITY (Available at Wharf)	A.C., 110/220 volts, single phase, 60 cycles; A.C., 440 volts, 3 phase, 60 cycles.	None.	A.C., 110 volts, single phase, 60 cycles; A.C., 220 volts, 3 phase, 60 cycles.
TYPES (Other than City)	A.T.&T. system, Model No. 3 [illegible]	Hose connections and attachments at plant.	Hydrants, hose, and fire extinguishers.
REMARKS	22.0 acres of land [illegible] via the Mystic River and Chelsea Creek. Fuel oil is received via the pier and transferred by 4-ton [illegible] Fire hydrants and fire hose connections are provided [illegible] conveyor to the plant.	Fuel oil is received via the pier and transferred by 4-ton [illegible] about 1,000 feet to the fuel oil storage tanks.	Bulk cement is received via the pier and transferred by [illegible] about 1,000 feet to the storage tanks.

PIERS, WHARVES, AND DOCKS

Charleston, right bank, Wando River.

	70 Index Code No. 970	71 Index Code No. 971	72 Index Code No. 972
Name or No.	Navigation Terminals, Wando River Wharf No. 3.	Mystic Wharf.	U. S. Gypsum Co. Wharf.
Location on waterfront	Approximately 0.50 mile above the Ravenel J. Tobin bridge, southeast side of ship.	Approximately 3.1 feet above Ravenel J. Tobin bridge.	Under and above Ravenel J. Tobin Bridge.
Owned by	Duddy Tire	Mass. Port A.	U. S. Gypsum Co.
Operated by	do.	Schirmer & Sons Inc., Division of Richard Schirmer & Sons Inc. 20 acres	do.
Purpose for which used	Used only for domestic warehs.	Shipment of scrap metal; receipt of steel products.	Receipt of gypsum rock by self-unloading vessels.
Type of construction	Masonry bulkhead, solid fill, with timber pile, timber-decked extension.	Masonry bulkhead, solid fill, with timber pile, timber-decked extension along east side.	East 330-foot section: masonry bulkhead, solid fill with timber pile; remainder: extension, number 120-foot sections at 1 about pile bulkhead with solid fill; set back at section; concrete bulkhead, solid fill, faced by timber fenders at wharf extension.
DESCRIPTION			
Face	Face — South side — Inner end of slip	Face	Face
Dimensions (feet)	241 — 120 — 241	1,650	330 — 120 — 330
Depth Alongside at MLW (ft.)	34+ (34+) — 27	34	34
Berthing Space (lin. ft.)	241 — 120 — 90	1,650	600; also 4 berths
Width of Apron (ft.)	11 — 5 — 5	Open.	Open.
Height of Deck Above MLW (ft.)	20 — 16 — 16	16	16
Load Capacity per Sq.Ft. (lbs.)	500	1,000, solid fill.	-
Lighted or Unlighted	Lighted.	Lighted.	Lighted.
TRANSIT SHED			
Number and Type of Construction	One exterior flare; part metal and part asphalt composition board-on-wood solid fill.	None.	None.
Length and Width (feet)	240-72 - 48-123-135		
Floor Inside (sq. ft.)	30		
Floor Area Outside (sq. ft.)	5000		
Load Capacity per Sq.Ft. (lbs.)	500		
Cargo Doors	Skipjack: thirty-seven to others; thirty-three; all 16- by 20-foot.		
MECHANICAL HANDLING FACILITIES	Twelve-three, gasoline, fork lift trucks with capacities ranging from 3 to 7.5 tons.	Three 20-ton m. electric, gravelers, 4-cubic, pulley type, drift & grinder each with power for and out of cycle, 1-inch 60-cm. tractor electric motor 3 or 3 1/2 cm. and 10 feet beneath the 10-inch, four low-speed, locomotive cranes, each with 7 mast boom and equipped with 60-inch diameter

PIERS, WHARVES, AND DOCKS

South Boston, east side Fort Point Channel

Port of Embarkation, Army Base, South Boston Terminal, Mass.			
REFERENCE NUMBER ON MAP NO. 4	(a) Dock Code No. 607	(b) Dock Code No. 607	(c) Dock Code No. [illegible]
NAME	Atlas Terminal Stores, Tin shed Wharf.	Farrell's Dock & Terminal Co. wharf.	New York, New Haven and Hartford Railroad, River Wharf.
LOCATION ON WATERFRONT	Adjacent to northeast side of Congress Street Bridge.	Approximately 145 feet southeast of Northern Avenue Bridge.	At northeast side of Northern Avenue Bridge.
OWNED BY	Atlas Terminal Stores, Inc.	Farrell's Dock & Terminal Co.	New York, New Haven and Hartford Railroad Co.
OPERATED BY	do.	do.	Not operated.
PURPOSE FOR WHICH USED	Mooring lobster boats.	Mooring company-owned floating derricks and barges (See Remarks).	Not used.
TYPE OF CONSTRUCTION	Masonry bulkhead, solid fill, with timber pile, timber-decked extensions.	Masonry bulkhead, solid fill, with timber pile, timber-decked extension.	Masonry bulkhead, solid fill, with timber pile, timber-decked extension.

DESCRIPTION	(a) Face	(b) Face	(c) Face
Dimensions (Feet)	306	413	283
Depth Alongside at MLW Ft.	12-11	20-12	15-10
Usable Berthing Space Ft.	306	413	155
Width of Apron Ft.	10-12 and open.	Open.	Open.
Height of Deck Above MLW Do.	15	14	14-16
Load Capacity per Sq.Ft. (Lbs.)	-	-	-
Lighted or Unlighted	Lighted.	Lighted.	Unlighted.
TRANSIT SHEDS	One - timber frame, metal covered, wood floor.	None.	None.
Number and Type of Construction			
Length and Width (Feet)	70 by 65		
Height Inside Ft.	10		
Floor Area for Cars (Sq.Ft.)	4,500, approx.		
Load Capacity per Sq.Ft. (Lbs.)	-		
Cargo Doors	Shipside, two, 12- by 20-foot others along platform at rear.		
MECHANICAL HANDLING FACILITIES	None.	None.	None.
RAILWAY CONNECTIONS	New York, New Haven and Hartford Railroad: One surface track in street is at platform level with rear of transit shed.	New York, New Haven and Hartford Railroad: One surface track in street along rear of wharf.	New York, New Haven and Hartford Railroad: One surface track on wharf continues across Northern Avenue to serve Fan Yard Wharf (Ref. No. 105).
HIGHWAY CONNECTIONS	Via Sleeper Street (terminal and access), granite block, 20 feet wide, from Congress Street and Northern Avenue.	Same as Ref. No. 99.	Same as Ref. No. 99.
WATER SUPPLY (Available to Vessels)	None.	None.	None.
ELECTRIC CURRENT (Available to Vessels)	None.	None.	None.
FIRE PROTECTION (Other than City)	-	Watchman.	Watchman.
REMARKS	Transit shed and Boston & Providence Railroad building 152 ft. E are used as stores & warehouse (See S.A. Ref. No. 17).	Floating derricks and barges are owned by Merrill Dock & Terminal Co., an affiliate of Farrell's Dock & Terminal Co.	-

PIERS, WHARVES, AND DOCKS
Boston City Front, Main Ship Channel

Corps of Engineers Port Code No.: 03701 Boston Harbor, Mass.

REFERENCE NO. (SEE MAPS)	97 Dock Code No. 657	98 Dock Code No. 651	Dock Code No.
NAME	Otis Wharf.	U.S. Appraisers Stores Wharf.	
LOCATION OF PARTICULARS	Atlantic Avenue, 140 feet north of Northern Avenue Bridge.	Atlantic Avenue, adjacent to north side of Northern Avenue Bridge.	
OWNED BY	Atlantic Building Trust.	U.S. Government.	
OPERATED BY	Hines & Scott Corp.	General Services Administration.	
PURPOSE FOR WHICH USED	Receipt of lumber.	Mooring various types of small government-owned vessels.	
TYPE OF CONSTRUCTION	Timber pile, timber-decked shore wharf.	Concrete bulkhead with concrete-surfaced solid fill.	
DESCRIPTION	Face	Face	
Dimensions (Feet)	130	137	
Depth Alongside at MLW (Ft.)	13+3	ff-13	
Usable Berthing Space (Ft.)	130	137	
Width of Wharf (Ft.)	4	16	
Height of Deck Above MLW (Ft.)	14	22	
Load Capacity per Sq. Ft. (Lbs.)	-	500	
Lighted or Unlighted	Lighted.	Lighted.	
TRANSIT SHED	None.	None.	
Number and Type of Construction			
Length and Width (Feet)			
Height to Eave (Ft.)			
Floor Area for Cargo (Sq. Ft.)			
Load Capacity per Sq. Ft. (Lbs.)			
Cargo Lifts			
MECHANICAL HANDLING FACILITIES	None.	One 2-ton, hand-operated, monorail hoist extends from roadway at elevated steel platform on wharf apron.	
RAILWAY CONNECTIONS	None.	None.	
HIGHWAY CONNECTIONS	Via Atlantic Avenue (original), Concrete, 43 feet wide.	Via Northern Avenue (original), granite block, 60 feet wide.	
WATER SUPPLY (Available to Vessels)	Through small hose lines.	Three 3/4 inch branch line with 1-inch hose connection.	
ELECTRIC POWER (Available to Vessels)	A.C., 110 V 2ø- single-phase, 60-cycle.	None.	
FIRE PROTECTION (Other than City)	None.	Hydrants, hose and hand extinguishers.	
REMARKS	Oil carried in drums. Dock [illegible] tank trucks [illegible] for transfer of fuel to vessels. Trucks [illegible] fuel oil [illegible] on Atlantic Avenue.	Supplies [illegible] trucks [illegible] berthing at this wharf or trucks [illegible] on Northern Avenue side.	

PIERS, WHARVES, AND DOCKS
Boston City Front, Main Ship Channel

Corps of Engineers Reference No. 0470, Boston District, Mass.

REFERENCE NUMBER ON MAP	94 Dock Code No. -	95 Dock Code No. 94	96 Dock Code No. 919
NAME	Central Wharf.	India Wharf.	Foster Wharf.
LOCATION ON EQUIPMENT	Atlantic Avenue, foot of Central and Milk Streets extended.	Atlantic Avenue, foot of India and Broad Streets extended.	Atlantic Avenue, foot of Broad Street.
OWNED BY	New England Aquarium Corp.	The Gore K. Jamieson Associates, Dreyfus Properties, Agent.	John G. Carzis.
OPERATED BY	do.	Various operators.	Massachusetts Bay Lines, Inc.
PURPOSE FOR WHICH USED	Not used for handling waterborne commerce.	Existing harbor sightseeing sailing vessel and other types of small vessels.	Mooring excursion boats.
TYPE OF CONSTRUCTION	Masonry retaining walls with solid fill (See Remarks).	Masonry retaining walls, solid fill, with timber pile, tier-reinforced extensions; south side fronted by timber sheet piling. Two timber floats, 50- by 12-foot and 40- by 8-foot with approach to shore located at inner end of south side.	Masonry retaining walls, solid fill, with timber pile, timber-decked extensions.
DESCRIPTION	Face / South side / North side	Face / South side / North side	Face / North side
Dimensions (Feet)	108+97 / 141+15+10 / 725	510 / 461 / 397	272 / 360
Depth Alongside at MLW (ft.)	- / - / -	- / 21-15 / 21-13	19-15 / 18-5
Usable Berthing Space (ft.)	- / - / -	- / 150+150 / -	222 / 360
Width of Wharf (ft.)	- / - / -	- / - / Open.	6-8 / 6-4
Height of Deck Above MLW (ft.)	16-13	14	14
Load Capacity per Sq.Ft. (Lbs.)	-	-	300
Lighted or Unlighted	Lighted.	Partly lighted.	Lighted.
TRANSIT SHED	None.	None.	None (See Remarks).
Number and Type of Construction			
Length and Width (Feet)			
Height Inside (ft.)			
Floor Area (Sq.Ft.)			
Load Capacity per Sq.Ft. (Lbs.)			
Cargo Doors			
MECHANICAL HANDLING FACILITIES	None.	None.	Two adjustable passenger ramps on face and one on north side.
RAILWAY CONNECTIONS	None.	None.	None.
HIGHWAY CONNECTIONS	Via Atlantic Avenue (Marginal), concrete, 75 feet wide.	Same as Ref. No. 94.	Same as Ref. No. 94.
WATER SUPPLY (Available to Vessels)	None.	Through 6-inch line.	Through 6-inch line with 2- and 1-inch hose connections.
ELECTRIC CURRENT (Available to Vessels)	A.C., 110 volts, single-phase, 60-cycle.	Same as Ref. No. 94.	A.C., 110-220 volts, single-phase, 60-cycle; A.C., 220 volts, 3-phase, 60-cycle.
FIRE PROTECTION (Other than City)	Hydrants.	Hydrants.	Hydrants, [illegible] water pails, and fire extinguishers.
REMARKS	At head of each wharf, concrete pier, slotted and fitted with timber fenders and fixed timber bollards, also at head of masonry retaining walls, and along walls of each wharf. A concrete apron, solidly filled by 1940-41 WPA project, located on pier. Entire pier has been forthering power, fire service, and other spots in the heads of each side pier and [illegible] by 24-ft. [illegible] at pier on south side.	Inner part of pier used for parking automobiles. The middle [illegible] station [illegible] and "Harvard" [illegible] of the [illegible] Dock Square. The floats at inner end of south side [illegible] [illegible] Square. The outer end of the pier [illegible] [illegible] of the outer part of pier [illegible] were destroyed by fire.	Excursion [illegible] [illegible] buildings on pier for use [illegible] [illegible] and occupied by various [illegible] [illegible] [illegible]

PIERS, WHARVES, AND DOCKS
Boston City Docks, Main Ship Channel

Corps of Engineers Port Code No. 1701 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 3	91 Dock Code No. 603	92 Dock Code No. 606	93 Dock Code No. [illegible]
NAME	Eastern Packet Pier and wharf.	T-wharf.	Long wharf.
LOCATION OR REFERENCE	Atlantic Avenue, at foot of Richmond and Clinton Streets extended.	Atlantic Avenue, foot of South Market Street extended.	Atlantic Avenue, between [illegible] Commercial and State Streets extended.
OWNED BY	Boston Redevelopment Authority.	Boston Redevelopment Authority.	Theodore N. Swanson Associates, Preytus Properties, Agent.
OPERATED BY	A. Kelly, Fisherman's Marina, and various other operators.	Various operators.	Various operators.
PURPOSE FOR WHICH USED	Receipt of seafood, and mooring fishing boats.	Mooring fishing boats and various other types of small vessels.	Marine excursion [illegible] fishing boats, harbor [illegible] water barges, and various other types of small vessels.
TYPE OF CONSTRUCTION	Timber pile, part timber and part concrete-decked, V-shaped pier projecting from timber pile, timber-decked shore wharf fronting bulkhead masonry bulkhead with solid fill.	Timber crib retaining walls, solid fill, with timber pile, timber-decked extensions, part asphalt-surfaced; [illegible]-ft bulkhead at inner end of south side.	Masonry retaining walls, [illegible] with timber pile, timbered end extensions.

DESCRIPTION	South side of V pier	North side of V pier	Shore wharf	Face	South side	North side	Face	South side	North side
Dimensions (Feet)	95	150	60×120±75	98	300-110	747	225	445±370	295±61
Depth Alongside at MLW Ft.	5+4	6+2	6+2	20-15	2+-5	21-1	25-11	25-11	21-1
Usable Pertaining Space Sq. Ft.	95	160	120-106	-	300±110	747	225	445±370	295±61
Width of Apron Ft.	9 and open.	20 and open.	15 and 0	35	25-35	25-35	6	6+4	6+4
Height of Deck Above MLW Ft.	14			14			14		
Load Capacity per Sq.Ft. (Lbs.)	-			-			400		
Lighted or Unlighted	Lighted.			Partly lighted.			Partly lighted.		
TRANSIT SHED	None (See Remarks).			None (See Remarks).			None (See Remarks).		
Number and Type of Construction									
Length and Width Feet									
Height Inside Ft.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									
MECHANICAL HANDLING FACILITIES	None.			None.			None.		
RAILWAY CONNECTIONS	None.			Two surface tracks on north side of inner end serve cold storage warehouse, total length 400 feet; connect with Union Freight Railroad.			None.		
HIGHWAY CONNECTIONS	Via 17-foot entrance [illegible] bulkhead from Atlantic Avenue (marginal), concrete, 75 feet wide.			Via Atlantic Wharf (marginal), concrete, 75 feet wide.			Same as Pier No. 92.		
WATER SUPPLY (Available to Vessels)	Lines of fire lines.			Same as Pier No. 91.			Same as Pier No. 91.		
ELECTRIC POWER (Available to Vessels)	A.C., 220 volts, single-phase, 60-cycle.			None.			D.C., 110-220 volts, [illegible] use by excursion boat.		
FIRE PROTECTION (Other than City)	None.			None.			A.B.T. Services, hydrants [illegible] system in part of Pier [illegible]		
REMARKS	Vessels [illegible] approximately 100 feet each of pier. Terminal building located also [illegible] 50 by 70 feet, with [illegible] [illegible] [illegible]

PIERS, WHARVES, AND DOCKS

Boston City Proper, Principal Channel

Color of Reference Number on Key Map	[illegible]		
REFERENCE NUMBER ON KEY MAP	84 Dock Code No. 607	85 Dock Code No. 609	86 Dock Code No. 610
NAME	Texas Wharf, South Pier.	Commercial Wharf, North Pier.	Commercial Wharf, 5th Pier.
LOCATION ON WATERFRONT	Atlantic Avenue, at foot of junction with Commercial Street, westerly of foot of Fleet Street extended.	Atlantic Avenue, northerly foot of Richmond Street extended.	Atlantic Avenue, foot of Richmond Street extended.
OWNED BY	Boston Waterfront Development Corp.	Blue Water Trust.	Blue Water Trust.
OPERATED BY	Massachusetts Institute of Technology and Community Produce Co.	Commercial Wharf Pier; Ida A Cox Harbor Marine Service; and various other operators.	Commercial Wharf Properties Co.; Cox Harbor Marine Service; and various other operators.
PURPOSE FOR WHICH USED	Mooring various types of small vessels.	Mooring small vessels for repairing engines and running fishing boats and various other types of small vessels.	Mooring, icing, and servicing fishing boats.
TYPE OF CONSTRUCTION	Masonry retaining walls, solid fill, with timber pile, timber-decked extensions	Masonry retaining walls, solid fill, with timber pile, timber-decked extensions, part of deck on north side concrete; 70-ft. timber pile, timber-decked shed extends from inner end of south side. Other section of pier deck reddy tire.	Masonry retaining walls, solid fill, with timber pile, timber-decked extensions (See Remarks).
DESCRIPTION	Face / South side / North side	Face / South side / North side	Face / South side / North side
Dimensions (Feet)	84 / 250-320 / 240	61 / 213 / 293-450	78 / 423-430-320 / 240
Depth Alongside at MLW (Feet)	18-23 / 2-7 / 22-7	22-23 / 25-6 / 21-2	23-17 / 22-3 / 21-6
Usable Berthing Space (Ft.)	61 / 250-320 / 240	- / - / 150 ft. barge	78 / 423-430 / 240
Width of Apron (Ft.)	6 / 6-3 / 6	- / - / -	14-10 / 4-5 and given 8-9
Height of Deck Above MLW (Ft.)	14	14	14
Load Capacity per Sq.Ft. (Lbs.)	"	300, inner section.	300
Lighted or Unlighted	Unlighted.	Partly lighted.	Partly Lighted.
TRANSIT SHED	None (See Remarks).	None (See Remarks).	None (See Remarks).
Number and Type of Construction			
Length and Width (Feet)			
Height Inside (Ft.)			
Floor Area for Cargo (Sq.Ft.)			
Load Capacity per Sq.Ft. (Lbs.)			
Cargo Doors			
MECHANICAL HANDLING EQUIPMENT	None.	None.	One crane for supplying crushed ice to fishing boats at inner 125-foot section and one at 130-foot section on south side.
RAILWAY CONNECTIONS	One 420-foot service track in rear of building on pier extends 100 feet inside building at floor level, connects with Union Freight Railroad.	None.	None.
HIGHWAY CONNECTIONS	Via Atlantic Avenue and Commercial Street (marginal), 75 feet wide.	Same as Ref. No. 88.	Same as Ref. No. 88.
WATER SUPPLY (Available to Vessels)	Various operators have hose lines for own use.	Drought and hose lines.	Through 1-inch line.
ELECTRIC CURRENT (Available to Vessels)	None.	A.C., 110 Volts, single-phase, 60-cycle.	Same as Ref. No. 89.
FIRE PROTECTION (Other than City)	Water Lines and fire extinguishers.	a) Plants.	a) Plants.
REMARKS	Pier north of Texas Wharf is reserved for fire boat. Most of pier is occupied by outer south section is occupied by Chemetis Institute of Technology, their boat is moored at outer end of "E. K. Scott" vessel is 40- by 12-ft. It is at 45° inclined gangway to pier.	One 150-ton derrick on pier by building at foot of pier with [illegible] Steamships [illegible] Boston, Mass. [illegible] Fish Pier, [illegible] Boston, Mass. [illegible] Eastern Gas & Fuel Associates, Boston, Mass. [illegible] Eastern Gas & Fuel Associates, Boston, Mass. [illegible] Eastern Gas & Fuel Associates,

PIERS, WHARVES, AND DOCKS

Boston City Front, Main Ship Channel

Origin of Numbers: Dock Code No. 610 for Boston Harbor, Mass.

IDENTIFICATION OR PIER NO.	86 Dock Code No. 612	86 Dock Code No. 611	87 Dock Code No. 617
NAME	City Fireboat Wharf.	Lincoln Wharf.	Fort Point, North Pier.
LOCATION OR RATE-ZONE NO.	Foot of Battery Street.	South of foot of Battery Street.	Atlantic Avenue, at junction with Commercial Street, foot of Fleet Street extended.
OWNED BY	City of Boston.	Massachusetts Bay Transportation Authority.	Boston Waterfront Development City.
OPERATED BY	City of Boston Fire Department.	Not operated.	R. O. Alcorn Co., Inc., and various other operators.
PURPOSE FOR WHICH USED	Mooring city fireboats, Engine 31 and Engine 47.	Not used.	Occasional receipt of coastal and mooring various types of small vessels.
TYPE OF CONSTRUCTION	Timber pile, timber-decked irregular-shaped pier; remains of timber piles also, south side and remains of 120- by 3-foot timber catwalk along north side.	Timber pile, timber-decked pier; 30-foot masonry bulkhead, solid fill, with timber pile, timber-decked extension at inner end of south side.	Masonry retaining walls, solid fill, with timber pile, timber-decked extensions, 125-foot timber pile, timber-decked shed extends from inner end of south side. Timber mooring floats along north side.

DESCRIPTION	Face	South side	North side	Face	South side	North side	Face	South side	North side
Dimensions (Feet)	75	65-45-125	55-15-120	135	170	230	136	225	305
Depth Alongside at M.L.W. (Ft.)	21-19	20-8	17-12	23-13	25-9	20-16	20-21	21-8	20-7
Usable Berthing Space (Ft.)	75	100	120	135	260	-	136	225	175
Width of Apron (Ft.)	Open.			20-5	10-15	10	8	5 and open	5 and open
Height of Deck above MLW (Ft.)	14			17.1			14		
Load Capacity per Sq. Ft. (Lbs.)	-			-			-		
Lighting if Lighted	Lighted.			Lighted.			Lighted.		
TRANSIT SHED	None.			None.			None (See Remarks).		
Number and Type of Construction									
Length and Width (Feet)									
Ground Floor (Sq. Ft.)									
Floor Area for Cargo (Sq. Ft.)									
Load Capacity per Sq. Ft. (Lbs.)									
Cargo Doors									

MECHANICAL HANDLING FACILITIES	None.	Pier was formerly used for receipt of coal for plant consumption and the following equipment remains on pier: Two 5-ton, steam, traveling, straight-line, coal-and-ash towers on south side, each with 50-foot boom and 1 1/2-ton clamshell bucket; horizontal chain and bucket conveyor system extends from a 5,000-ton elevated coal bin on south side of pier to electric power plant in rear. One 5,000-ton coal bin on north side of pier.	None.
RAILWAY CONNECTIONS	None.	None.	Two spur tracks in rear, total length 500 feet; connect with Union Freight Railroad.
HIGHWAY CONNECTIONS	Via Commercial Street (regional), concrete, 60 feet wide.	Same as P.F. No. 85.	Via Atlantic Avenue and Commercial Street (regional), paved, 75 feet wide.
WATER SUPPLY (Available to Vessels)	Thru 4-inch hose line, for own use.	Thru one 1 1/2- and 2-inch hose connections from 4-inch lines.	Various operators have hose lines for own use.
ELECTRIC CURRENT (Available to Vessels)	A.C., 220 volts, 3-phase, 60-cycle.	A.C., 440 volts, 3-phase, 60-cycle.	None.
FIRE PROTECTION (Other than City)	Hydrants, hose, and fireboats.	Sprinkler system, hydrants, hose, and alarms.	Water lines and hand extinguishers.
REMARKS	Under about 1/3 of pier varies in width from 21 to 25 feet. Timber piers in lines of old ferry slip, crosses slip 75 feet wide. Pier is 15 ft. above datum. The entrance to Boston U.S. Coast Guard Base No. 3 (P.F. No. 84) and the Massachusetts Bay Transportation Authority's pier on Fort Point Channel (P.F. No. 85) are on the opposite side of the channel from this area.	One 60-ft. vertical, steel, fuel oil storage tank, in rear of railroad on reinforced concrete, curved or highway tank type pier. Tanker Tunnel located under pier.	Shed is 1-story and 2-story, 65 feet wide at outer end, 225 feet at inner end, with 25-foot bay on north side. Pier (P.F. No. 86). Inner portion of pier is 15 ft. above datum. One 45% to west of Building 1, generally 100 feet in rear of slip. Building 2 pier in rear of two outer sheds of north side, 100 ft. in rear of bulkhead at inner end of slip.

PIERS, WHARVES, AND DOCKS
Boston City Front, Main Ship Channel

[illegible]	[illegible]	[illegible]	[illegible]
LOCATION OR DESIGNATION	Pier No. 2 Pier 2, Dock Code No. 602 U.S. Coast Guard Pier No. 2.	Pier No. 3 Pier 3, Dock Code No. 603 U.S. Coast Guard Pier No. 3.	Pier No. 4 Pier 4, Dock Code No. 604 Battery Wharf.
LOCATION OR DESIGNATION	East of Hanover Street extended.	East of foot of Hanover Street extended.	North of foot of Battery Street extended.
OWNED BY	U.S. Government.	U.S. Government.	Assets of J., James S., Joseph P., Richard J., and Salvatore P. Fiore.
OPERATED BY	U.S. Coast Guard.	U.S. Coast Guard.	do.
TYPE OF WATER USE	Mooring U.S. Coast Guard vessels.	Mooring U.S. Coast Guard vessels.	Berthing of lobsters, and mooring various types of small vessels.
TYPE OF CONSTRUCTION	Steel pile, concrete deck, timber fenders; 100-foot wharfhead at inner end of northwest side.	Composite pile, concrete deck, timber fenders, 40-foot bulkhead at inner end of northwest side and 115-foot bulkhead at inner end of southeast side.	Wharf is retaining wall, earth fill, with timber pile, plank-faced platform at face and 2 rows steel timber piling along south side.
DESCRIPTION	Face / Southeast / Northwest	Face / Southeast / Northwest	Face / South side / North side
Length (feet)	410 / 107 / 230	410 / 550 / 190	370 / 280 / 430
Depth alongside at MLW (feet)	32-6 / 30-0 / 28	30-36 / 0-30 / 0-30	37-3 / 32-10 / 37-34
Usable Portland Space (feet)	60 / 405 / 260	60 / 550 / 400	370 / - / 190
Width of Deck (feet)	Wide.	Crane.	4 / - / 4
Height of Deck Above MLW (feet)	20	20	14 and 11.5 / 14
Load Capacity per Sq.Ft. (lbs.)	1,000-750	1,000-750	-
Electric Power Supplied	Lighted.	Lighted.	Partly lighted.
TRANSIT SHED	None.	None.	None (See Remarks).
Number and Type of Cranes			
Length and Width (feet)			
Permit Limit			
Floor Area for Cargo (sq.ft.)			
Load Capacity per Sq.Ft. (lbs.)			
Cargo Doors			
MECHANICAL HANDLING FACILITIES	Two 25-crane, operated under Ref. No. 61.	Two 25-crane, operated under Ref. No. 61.	Hand-operated hoists.
RAILWAY CONNECTIONS	None.	None.	One 220-foot curved track on pier connects with Union Freight Railroad.
HIGHWAY CONNECTIONS	Via private entrance from Commercial Street (macadam, concrete, 60 feet wide.	Same as Ref. No. 62.	Via Commercial Street (macadam), concrete, 60 feet wide.
WATER SUPPLY (Available for Use)	Standpipe hose and sprinkler lines in 3-inch lines.	Same as Ref. No. 62.	Through 6-in line.
ELECTRICITY (Available for Use)	A.C., 208 V 3 line, 3-phase, 60-cycle.	A.C., 41 V 3-ph, 3-phase, 60 cycle.	A.C., 120 V line, 1 phase, 60-cycle. A.C., 220 V 3ph, 3-phase, 60-cycle.
FIRE PROTECTION (Other than Above)	Sprinklers, hose lines, connections with fire plugs and hand extinguishers and stations.	Same as Ref. No. 62.	Sprinkler system throughout warehouse, hose, and hand extinguishers.
REMARKS	-	Pier owned by, and used by U.S. Coast Guard as hdq. pt.	[illegible]

PIERS, WHARVES, AND DOCKS

Boston City Front

	79 Dock Code No. 985	80 Dock Code No. 901	81 Dock Code No.
NAME	General Services Administration Wharf.	Boston Harbor Police Wharf.	U.S. Coast Guard Pier No. 1.
LOCATION OR ALTERNATE	Right bank of Charles River, approximately 200 feet below Charlestown Bridge.	Right bank of Charles River, approximately 0.20 mile below Charlestown Bridge.	Main Ship Channel, [illegible] Street extended.
OWNED BY	U. S. Government.	City of Boston	U. S. Government.
OPERATED BY	General Services Administration.	City of Boston, Police Department, District No. 8.	U. S. Coast Guard.
PURPOSE FOR WHICH USED	General mooring of various types of small vessels.	Mooring harbor patrol boats.	Mooring U. S. Coast Guard [illegible]
TYPE OF CONSTRUCTION	Timber pile, treated deck. L-shaped wharf extending from west end, parallel with 118-foot, timber pile, timber-capped apron wharf. Face of this pier wharf is intended for 1- by 8-foot, small-craft passenger landing and mooring float. (See Remarks).	Covered boat slip, inner end: concrete bulkhead with solid fill; sides: timber catwalks and mooring floats.	Steel pile, concrete deck; fenders: 100-foot bulkhead at [illegible] of northeast side.
DESCRIPTION	Face / East side / West side	Inner end / East side / West side	Face / Southeast / Northwest
Dimensions (Ft.-In.)	1-0 / 15-30 / 72	37 / 120 / 95	100 / 260 / [illegible]
Depth Alongside at MLW (Ft.)	17-25 / 11-24 / 12-11	20 / 20-0 / 20-0	20-23 / 20 / [illegible]
Usable Berthing Space (Ft.)	100 / 30 / 72	- / 110 / 85	100 / 250 / [illegible]
Width of Apron (Ft.)	20-0	4 / 4 / 4	0.00
Height of Face Above MLW (Ft.)	16	16	16
Load Capacity per Sq.Ft. (Lbs.)	-	-	1,000-750
Lighted or Unlighted	Unlighted.	Lighted.	Lighted.
TRANSIT SHED	None.	None.	None.
Number and Type of Construction			
Length and Width (Ft.)			
Height Inside (Ft.)			
Floor Area (Sq.Ft.)			
Load Capacity per Sq.Ft. (Lbs.)			
Cargo Doors			
MECHANICAL HANDLING FACILITIES	None.	Monorail with hand-operated hoist extends over slip inside boathouse.	One 10-ton, gasoline, [illegible] with 30-foot boom and 50-foot mobile crane with 50-ft. [illegible] and 20-foot jib extension.
RAILWAY CONNECTIONS	None.	None.	One 175-foot surface track [illegible] side of pier connects with [illegible] Union Freight Railroad on [illegible] Street.
HIGHWAY CONNECTIONS	Via private surface driveway to Commercial Street (via circle), one-way, 30 feet wide.	Same as def. No. 79.	Via private surface driveway from [illegible] Street (Charlestown), concrete, [illegible] wide.
WATER SERVICE (Available to Vessels)	Yes.	Through 4 hose connections from one 1 1/2-inch water line.	Two fire hose connections [illegible] 1 1/2-inch lines.
ELECTRIC CURRENT (Available to Vessels)	Yes.	A.C., [illegible] volts, 3-phase, 60-cycle; A.C., 220 volts, 3-phase, 60-cycle.	A.C., [illegible] volts, [illegible] A.C., 208 volts, [illegible]
TELEPHONE SERVICE (Other than City)	Yes.	Telephone in [illegible] and watchman.	Telephone [illegible] for [illegible] telephone booths, [illegible] and watchman.
REMARKS	Also [illegible] of [illegible] Lot 1. [illegible] Lot 2. [illegible] Lot 3. [illegible] Lot 4. [illegible] Lot 5. [illegible] Lot 6. [illegible] Lot 7. [illegible] Lot 8. [illegible] Lot 9. [illegible] Lot 10. [illegible] Lot 11. [illegible] Lot 12. [illegible] Lot 13. [illegible] Lot

PIERS, WHARVES, AND DOCKS

Cambridge

[illegible]	[illegible] Dock Code No. 1-7	[illegible] Dock Code No. 1-8	[illegible] Dock Code No. 1-9
Owned by	Chevron Oil Co. Wharf.	Cambridge Electric Light Co. wharf.	Cambridge Gas Co. Wharf.
Location on Waterfront	Northeast side of Inchcape Canal, approximately 200 feet of Memorial Avenue Bridge.	North side of Broad Canal, adjacent to east side of First Street Bridge.	North side of Inner Canal, adjacent to east side of Third Street Bridge.
Owned By	Chevron Oil Co.	Cambridge Electric Light Co.	Cambridge Gas Co.
Operated By	do.	do.	do.
Purpose for which used	Receipt of petroleum products.	Receipt of fuel oil for plant consumption.	Receipt of tar, and receipt of fuel oil for plant consumption.
Type of Construction	Masonry bulkhead, solid fill, and timber pile, timber-decked extension.	Part concrete and part masonry bulkhead with solid fill.	Masonry bulkhead, solid fill.
DESCRIPTION	**Face**	**Face**	**Face**
Berthing Space	500	600	250 approx.
Depth Alongside at	12, pool level (See Remarks).	12-14, pool level.	12-14, pool level.
Usable Berthing Space	500	250	250
Width of Apron	Open	Open	Open
Height of Deck Above	8, pool level.	8, pool level.	8, pool level.
Load Capacity per Sq.Ft.	-	-	-
Lighted or Unlighted	Unlighted.	Unlighted.	Unlighted.
TRANSIT SHED	None.	None.	None.
Number and Type of Construction			
Length and Width			
Height Levels			
Floor Area for Cargo			
Load Capacity per Sq.Ft.			
Cargo Doors			
MECHANICAL HANDLING FACILITIES	None.	None.	None.
RAILWAY CONNECTIONS	None.	Plant trackage in rear connects with New York Central Railroad.	One natural spur track in rear joins additional plant trackage connects with New York Central Railroad.
HIGHWAY CONNECTIONS	Via Cambridge Street (access), asphalt, 30 feet wide.	Via private entrance to First Street (access), asphalt, 30 feet wide.	Same as Ref. No. 77.
WATER SUPPLY (Available to Vessels)	None.	None.	None.
ELECTRIC POWER (Available to Vessels)	None.	None.	None.
FIRE PROTECTION (Other than City)	None.	Hydrants and hand extinguishers.	Same as Ref. No. 77.
REMARKS	[illegible] asphalt [illegible] feet wide, total [illegible] rear, [illegible] 200 [illegible] Nos. 76, 77, and 78 [illegible] level of the channel [illegible] feet above mean low water in the harbor.	One 8-inch [illegible] to new 20-inch [illegible] tank in rear.	[illegible] Electric Light Co. [illegible] 8-inch [illegible] of 8 [illegible] 8-inch, [illegible] storage [illegible] Gas Co. [illegible] from wharf to 8-inch, [illegible] total capacity 30 [illegible] tanks.

PIERS, WHARVES, AND DOCKS

Charleston

Corps of Engineers, Port of Boston, Mass. (1970) Boston Harbor, Mass.

Facility (Name or No. of Pier, Wharf, or Dock)	Pier No. 50	Pier No. 49	Pier No. 48	Face	South side	North side	Face	Northeast side	Southwest side
	Dock Code No. [illegible]			Dock Code No. 911			Dock Code No. [illegible]		
Name	Massachusetts Port Authority, Marine Piers Nos. 48, 49, and 50.			Massachusetts Port Authority, Mystic Pier No. 1.			Massachusetts Port Authority, Pier No. 1.		
Location or Alignment	Main slip, normal to Northampton Street, approximately 300 feet both sides of Maurice J. Tobin Bridge.			Main Ship Channel, at mouth of Little Mystic River (with Channel).			[illegible] of Charlestown Waters, [illegible] approximately 0.15 mile below Charlestown Bridge.		
Owned by	Massachusetts Port Authority.			Massachusetts Port Authority.			Massachusetts Port Authority.		
Operated by	Boston Marine Disposal Corp.			do.			do.		
Purpose for which Used	Ship, rail or motor vehicle barge (Lo Ro Express); mooring towboats and barges.			Receipt and shipment of general cargo in foreign and domestic trades; receipt of steel products, lumber, and bulk sugar in bulk.			Receipt and shipment of general cargo in foreign and domestic trades; receipt of steel products and plywood.		
Type of Construction	Masonry bulkhead, solid fill, with timber pile, timber-decked extension.			Masonry retaining walls, solid fill, with steel pile, concrete-decked extensions; fronted by timber fender system.			Steel sheet pile retaining walls with concrete-faced solid fill [illegible], along sides and face [illegible] concrete retaining walls with concrete-[illegible] solid fill on concrete relieving platform supported by timber piles, timber fender system.		
Length (ft.)	133	300	550	468	647	672	515	515	505
Depth Alongside at MLW (ft.)	35	35	35	30	35	35	35	35-25	35-25
Usable Berthing Space (ft.)	133	300	550	468	890	620	515	525	525
Width of Apron (ft.)	[illegible]			20	25 and open	25	21	21	26
Height of Deck above MLW (ft.)	15			15.5			15.6-16.4		
Load Capacity per Sq.Ft. (lbs.)	-			600			600		
Lighted or Unlighted	Partly lighted.			Lighted.			Lighted.		
TRANSIT SHED	None.			One-story frame, corrugated asbestos-cement siding, otherwise concrete and concrete floor.			One-story brick with 4-foot brick or concrete wall topped by asbestos siding; bituminous concrete floor.		
Number and Type of Construction									
Length and Width (ft.)				459 by 418			495 by 462		
Height (ft.)				20			20		
Floor Area for Cargo (sq.ft.)				150,100			172,500		
Load Capacity per Sq.Ft. (lbs.)				600			600		
Cargo Doors				Sixteen: thirty-six (6- by 10-foot; two, 10- by 10-foot; two, 24- by 25-foot; and three 12- by 22-foot rail entrance doors at shore end).			Sixteen: forty-two (8- by 10-foot; four, 21- by 16-ft; [illegible] by 13-foot; and one, 27- by 30-ft [illegible] rail and truck entrance doors).		
MECHANICAL HANDLING FACILITIES	One 50-ton stiff-leg crane with 60-foot boom, equipped with grab bucket; one 3-cubic yard, diesel, crawler front-end loader.			Dock cargo equipment available as required.			Stevedore equipment [illegible] as required; one electric, [illegible] bridge across rail tracks [illegible] shed; and three 2-ton, [illegible] One draft gallery with 7 [illegible] spouts extends along southwest [illegible] transit shed roof; and three [illegible] hoisting machines inside transit shed connect with gallery. Cabin gallery is equipped with two electric, [illegible] conveyors and connects with a 1.0 [illegible] bucket grain elevator in rear of Water Street. (Elevator was not in use at time of survey.)		
RAILWAY CONNECTIONS	None.			One 300- and one 2000-ft surface track on south side of pier; one 600-foot surface track on north side of pier; and three depressed tracks inside center of transit shed, total length 1,275 feet; connect with rail tracks of Boston and Maine Corporation.			One surface track on northeast and southwest sides, total length [illegible] feet; and two depressed tracks [illegible] center of transit shed, total [illegible] feet; connect with rail tracks of Boston and Maine Corporation.		
HIGHWAY CONNECTIONS	Via Carleton Side (Collector), asphalt, various widths, then Everett Street, asphalt, 40 feet wide.			Via Terminal Street (Access and Approach), asphalt, 40 feet wide, then Medford Street, asphalt, 40 feet wide.			Via Water Street (Marginal), paved, 40 feet wide, then John F. Fitzgerald Expressway (Arterial).		
Water Supply (Available to Vessels)	Two 8-inch fire lines from system [illegible].			Service for 2- and one 2 1/2-inch lines.			Through 6 hose connections from two 2- and one 2 1/2-inch line.		
Electric Power (Available to Vessels)	None.			A.C., 110 volts, single-phase, 60-cycle.			A.C., 110 V. [illegible] single-phase, 60-cycle; A.C., 220 [illegible] volts, 3-phase, 60-cycle.		
Fire Protection (Other than City)	Hydrants and hose.			Sprinkler system in [illegible] shed, hand extinguishers, [illegible] stations.			A.D.T. service, sprinkler system in transit shed, hand extinguishers, and stations.		
Remarks	[illegible] is 1,000 feet [illegible] for berthing [illegible] Charlestown Navy Yard, [illegible] Pier No. 50 [illegible] and for repairing and fitting out vessels. Pier No. 49 is presently about 100 feet out of use and was formerly side of Mystic Pier No. 1 (Pier No. 71).			[illegible] Pier No. 1 [illegible] of Mystic River [illegible] Pier No. 1 [illegible] of Mystic River [illegible] Pier No. 1 [illegible] of Mystic River

PIERS, WHARVES, AND DOCKS

South Boston

Corps of Engineers Drawing No. 03[illegible] Boston Harbor, Mass.

	102 Dock Co. No. 672	103 Dock Co. No. 674	104 Dock Co. No. [illegible]
NAME	Boss Manufg Co. Pier.	Fan Yard Quay.	South Boston Pier No. 1.
LOCATION OR STREET NO.	Easterly side of Fort Point Channel, along northeast side of Northern Avenue Bridge.	West Side Channel at entrance to Fort Point Channel, adjacent to northeast side of Northern Avenue Bridge.	West Side Channel, Northern Avenue to between Farnsworth and Pier Streets extended.
OWNED BY	City of Boston.	The Trustees of New York, New Haven and Hartford Railroad Co.	See Remarks.
OPERATED BY	Boss Manufg Co., Inc.	do.	Not operated.
PURPOSE FOR WHICH USED	Wharf and facilities for company-owned tug and various other types of small vessels.	Occasional handling of construction supplies, materials, and equipment by barges mooring various types of small vessels.	Not used.
TYPE OF CONSTRUCTION	Timber-faced, rubble and timber piles, timber-decked pier extending from side of bridge; mooring cleats along face and southeast side.	Curved masonry bulkhead of solid fill, with approximately 2% feet of timber pile, timber-decked extension at upper end (See Remarks).	Masonry bulkhead, solid fill [illegible] face of timber pile, timber-decked [illegible] sections.

DESCRIPTION	Face	Northwest side	Southeast side	Face			Face	Northeast side
Dimensions (Feet)	55	103-75	15-15 27-35-05	500			750	175
Depth Alongside at MLW (Ft.)	24-00	09-21	15-12-10	16-10			25-2	25-10
Usable Berthing Space (Ft.)	60, at face (90)		33-155-50-	700			500, approx.	-
Width of Apron (Ft.)	Open.			Open.			Open.	
Height of Face Above MLW (Ft.)	15-10			16-15			20	
Load Capacity per Sq.Ft. (Lbs.)	-			-			-	
Lighting or Unlighted	Lighted.			Unlighted.			Unlighted.	
TRANSIT SHED	None.			None.			None.	
Number and Type of Construction								
Length and Width (Feet)								
Brick Inside (Ft.)								
Floor Area for Cargo (Sq.Ft.)								
Load Capacity per Sq.Ft. (Lbs.)								
Cargo Doors								

MECHANICAL HANDLING FACILITIES	One 2-ton capacity, revolving crane with 20-foot steel boom.	None.	None.
RAILWAY CONNECTIONS	None.	New York, New Haven and Hartford Railroad: One 100-foot material storage track on wharf extended from track serving River Wharf Co., No. 101) on opposite side of Northern Avenue.	Two platform-level tracks [illegible] and approximately 100 feet [illegible] face, total length 1,100 feet [illegible] with New York, New Haven and Hartford Railroad.
HIGHWAY CONNECTIONS	Via Northern Avenue Bridge.	Via North Jetty Avenue (access), granite block, 65 feet wide.	Same as Ref. No. 103.
WATER SUPPLY (Available to Vessels)	None.	None.	None.
FIRE CLASS (Available to Vessels)	None.	None.	None.
FIRE PROTECTION (Other than City)	Water lines, hose, and hand extinguishers.	Water [illegible]	-
REMARKS	Wharf [illegible] of timber [illegible] [illegible] for [illegible] [illegible] equipment [illegible] [illegible] [illegible]

PIERS, WHARVES, AND DOCKS

South Boston, Main Ship Channel

Corps of Engineers Port Code No. [illegible] Port: Auburn, Mass.

REFERENCE No. (See Sketch No. [illegible])	105 — Port Code No. 605	106 — Port Code No. 606	107 — Port Code No. 620
	South Boston Pier No. 2.	South Boston Pier No. 1.	Paul's Lobster Co. wharf.
LOCATION OR WATERFRONT	North of Area, foot of Northern Street extended.	Northern Avenue, about foot of D Street extended.	Northern Avenue, at foot of B Street extended at outer end of East side of South Boston Pier No. 1 (Ref. No. 106).
OWNED BY	Anthony Athanas et al.	Anthony's Pier 4, Inc. (Anthony Athanas et al).	Paul's Lobster Co.
OPERATED BY	Not operated.	do.	do.
PURPOSE FOR WHICH USED	Not used.	Mooring lobster boats and coastal vessels; small vessel "fill" on northeast side; occasionally landing for harbor passenger excursion vessels at face.	Receipt of seafood products lobster boats and various other types of small vessels.
TYPE OF CONSTRUCTION	Masonry bulkhead, earth fill with remains of timber pile, timber-decked extensions.	Masonry bulkhead, earth fill on remains of timber pile, timber-decked extensions; floating floats latched along outer portion of northeast side.	Timber bulkhead, earth fill; timber floating float located along face.
DESCRIPTION	Face / Southeast side / Northeast side	Face / Southeast side / Northeast side	Face / Southeast side
Elevations (Feet)	250 / [illegible] / 75	190 / 1,190 / [illegible]	65 / 10
Depth Alongside at High Water	- / 28-2 / 25-10	28-2 / - / 23-11	5 / -
Usable Berthing Space	- / 250, approx. / 250, approx.	500, approx. / - / 250, approx.	25, at float.
Width of Apron	25 ft.	25 ft.	6 ft.
Height of Deck Above Mean Low Water	20	20	2, float; 20, wharf.
Load Capacity per Sq.Ft. (Lbs.)	-	-	-
Lighted or Unlighted	Unlighted.	Lighted.	Unlighted.
TRANSIT SHED	None.	None.	None.
Number and Type of Construction			
Length and Width (Feet)			
Height Inside (Feet)			
Floor Area for Cargo (Sq.Ft.)			
Total Capacity per Sq.Ft. (Lbs.)			
Cargo Doors			
MECHANICAL HANDLING FACILITIES	None.	None.	Small hoist for handling lobster traps and gear.
RAILWAY CONNECTIONS	None.	None.	None.
HIGHWAY CONNECTIONS	Via Northern Avenue (access), granite block, 60 ft. wide.	Same as Ref. No. 105.	Same as Ref. No. 105.
WATER SUPPLY (Available to Vessels)	None.	Through small hose.	Through small hose.
ELECTRIC CURRENT (Available to Vessels)	None.	A.C., 110 volts, single-phase, 60-cycle.	A.C., 110 volts, single-phase, 60-cycle.
UTILITIES (Other than City)	-	Water line, hose, and fuel oil distributors and watchmen.	Water line, hose, and fuel oil distributors.
REMARKS	-	Owned by building located at end of pier between Piers No. 1 and No. 2; only 75 ft. of face between the two buildings is available for berthing; remainder of face is occupied for parking and storage.	Located just south of Pier No. 1; berthing facilities limited to small craft.

PIERS, WHARVES, AND DOCKS

South Boston, Main Ship Channel

Copies of Massachusetts Port Code No. 0 701 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP No. 1	108	109	110
NAME	Commonwealth South Boston Pier No. 5.	Commonwealth South Boston Pier No. 6.	South Boston Fish Pier.
LOCATION OR POINT	Short pier between Nos. 5 and 7 piers, 0.4 mile south of entrance to Fort Point Channel.	Northerly terminus, foot of D Street extended.	On southeast side of Pier No. 6 (Ref. No. 109), 630 feet from outer end.
OWNED BY	Massachusetts Port Authority.	Massachusetts Port Authority.	Massachusetts Port Authority.
OPERATED BY	do.		
PURPOSE FOR WHICH USED	Receipt and shipment of general cargo in foreign and domestic trades; passenger and boat line and shipment of saline and mineral salts. Exhibit hall on 2nd floor	Receipt and shipment of general cargo, fishing and distributing industry; ice, icing, and servicing fishing boats.	Receipt of seafood for processing and distribution; berthing and servicing fishing boats.
TYPE OF CONSTRUCTION	Timber bulkheads, reinforced concrete surfaced solid fill, on timber sheeting supported by 11 by 11-in. pile steel pile, and intermediate reinforcements along sides and face.	Masonry bulkheads, piles, concrete and granite blocks at end and solid fill on timber cribwork supported by timber pile; retaining walls fronted by timber fender system.	Two parallel, timber pile, timber-decked piers, 33 feet apart.

DESCRIPTION	Face	Southeast side	Northwest side	Face	Southeast side	Northwest side	Faces	Southwest sides	Northeast sides
Direction (Deg.)	150	1,200	1,200	300	1,190	1,210	27+75-27	90, each	90, each
Depth Alongside at MLW (Ft.)	40	40	40	25-20	25-20	25-20	25-22	25-22	25-22
Usable Terrain Space (Ft.)	200	1,200	1,200	200	650+220	1,200	27+75-27	150, each	90, each
Width (Ft.)	45	90	120	45 and open	45 and 40	45 and 40	See Remarks		
Height of Dock above MLW (Ft.)	18			16			16		
Load Capacity per Sq.Ft. (Lbs.)	500			500			-		
Lighted or Electric	Lighted.			Lighted.			Lighted.		
TRANSIT SHED	One - brick, steel trim, reinforced concrete; concrete floors.			None (See Remarks).			None (See Remarks).		
Number and Type of Construction									
Length and Width (Feet)	1,365 by 300, 1st fl.; 1,030 by 200, 2nd fl.								
Height Inside (Ft.)	20-7 ft., 1st fl.; 11-5 ft., 2d fl.								
Floor Area for Cargo (Sq.Ft.)	5 [illegible] 1st fl.; 214,000 2d fl. (See Remarks).								
Load Carried per Sq.Ft. (Lbs.)	250, 1st fl.; 200, 2d fl.								
Cargo Doors	Shed - 1st fl. - each side, twenty-six, 16- by 20-ft.; 1st fl. - outer end, four, 16- by 16-ft.; 2d fl. - each side, forty-five, 16- by [illegible]								
MECHANICAL HANDLING FACILITIES	[illegible] transit shed; 11 3-ton transit shed rail jib cranes, electric, floating elevators and portable bridges on 6 depressed tracks in each shed; stevedore equipment available as required.	Mechanized scafood-unloading and ice-loading equipment.					Mechanized seafood-unloading equipment.		
RAILWAY CONNECTIONS	One 1,137-foot surface track on each apron and two track ways, 92 feet apart, in-side transit shed, each with two 62-foot diameter tracks, join 61-car capacity Commonwealth Storage Yard on opposite side of Northern Avenue; connects with New York, New Haven and Hartford Railroad.	Two sets of tracks of three and of four, total length 3) feet, join 612-car capacity, Commonwealth Storage Yard on opposite side of Northern Avenue; connect with New York, New Haven and Hartford Railroad.					None.		
HIGHWAY CONNECTIONS	First floor via 3 streets Access (access), granite slope, 20 feet wide. Second floor via viaduct and ramp (approach), paved.	Via North or Wormie (access), granite block, 30 feet wide.					Same as Ref. No. 109.		
WATER SERVICE (Available to Vessels)	Ten 2 1/2-inch hose connections.	3 fresh water hydrants and hose connections.					-		
ELECTRIC POWER (Available to Vessels)	440 volts, 60 cycle, 3 phase, for motor AC; 220 volts, duplex, elevator.	AC, 440 volts, 60 cycle, 3 phase; 110 volts, 60 cycle.					-		
TELEPHONE SERVICE (Other than City)	4 pay-station booths in 1st fl. shed, bidirectional, 2-way radio-telephone, and extension.	Portable, fixed and extension stations, and extension.					Same as Ref. No. 109.		
REMARKS	[illegible] 1st floor [illegible] and three [illegible] 14-foot doors for Northern Avenue and 1st floor [illegible] doors for [illegible] Street. Outer end of pier extending to [illegible] Street. Pier No. 5 [illegible] outer 410-ft by [illegible] of 1 fl. [illegible] floor for [illegible] and [illegible] [illegible] operated [illegible] [illegible] Ref. Nos. 108 and 109). [illegible] Outer end [illegible] [illegible] [illegible] [illegible] [illegible]	Bridges [illegible] are to pier, one deck by [illegible] Street [illegible] Building located on outer end of pier. In Section 710 by 50-ft brick and concrete [illegible] used as public and commercial [illegible] by various companies.					Outer end [illegible] piers are used for [illegible] purposes and by [illegible] fish [illegible] with wood floor. [illegible] Building [illegible] and [illegible] handling lobsters.		

PIERS, WHARVES, AND DOCKS

South Boston

General Location (Port Code No. 0-01 Port of Boston)			
REFERENCE NUMBER (Key No. 4)	111 (Pier Code No. 24)	112 (Pier Code No. 711)	113 (Pier Code No. 7)
NAME	Berth No. 4, Boston Terminal, Pier Shed 1.	Berths Nos. 1, 2, and 3 (North Face), Piers Nos. 1, 2, and 3 (North Face).	Berths Nos. 4, 5, 6, 7, 8, 9, and 10 (South Face).
LOCATION OR PARTICULARS	West side of Fid Channel, at end of Boston Army Base Terminal, Berths Nos. 1 and 2 (Pier No. 112).	West side, Channel, at end of Northern side of Channel, at end of Northern Terminal Street extended.	Outer portion of North side of Reserved Channel.
OWNED BY	U. S. Government.	U. S. Government (leased to Massachusetts Port Authority).	U. S. Government (leased to Massachusetts Port Authority).
OPERATED BY	Do.	Port Terminals, Inc.	Port Terminals, Inc.
PURPOSE FOR WHICH USED	Receipt and shipment by water for plant consumption.	Receipt and shipment of general cargo in foreign and domestic trades.	Receipt and shipment of general cargo in foreign and domestic trades.
TYPE OF CONSTRUCTION	Concrete wall and cantilevered concrete deck, timber, steel sheet pile bulkhead with reinforced solid fill, concrete walls supported by steel piles and fronted by timber and rubber chock fender system.	Concrete wall and cantilevered concrete deck, timber & steel sheet pile bulkhead with solid fill and timber pile supporting concrete deck. Concrete wall supported by steel pile and fronted by timber and rubber chock fender system.	Concrete wall with cantilevered concrete deck, timber & steel sheet pile bulkhead with solid fill and timber pile supporting concrete deck. Concrete wall supported by steel pile and fronted by timber and rubber chock fender system.
DESCRIPTION	Face	South side Berths Nos. 1 and 2 / East side Berth No. 3	Face
Dimensions (Feet)	95	901 / 351.7	973.5
Depth Alongside at Low Water (Ft.)	35	35	35
Usable Berthing Space (Ft.)	95	901 / 351.7	973.5
Width of Apron (Ft.)	49	49	54.7
Height of Deck Above Mean Low Water (Ft.)	17.8	17.8	17.8
Load Carrying Capacity per Sq.Ft. (Lbs.)	-	600, on outer 25-30 feet; 500, in rear.	600, on outer 25-30 feet; 500, in rear.
Lighting	Partly lighted.	Lighted.	Lighted.
TRANSIT SHED	None.	South Pier Bulkhead No. 1 and portion of Pier No. 1 and concrete bulkhead connecting Pier No. 1 with Pier No. 2 and Pier No. 2 and 3 over north slip.	South Pier Bulkhead No. 1, Reinforced steel and concrete transit shed on concrete bulkheads; pier from 2d and 3d piers over slip No. 1.
Number and Type of Construction			
Length of Apron (Feet)		924.5 by 100'	921.5 by 100'
Entry Doors (No.)		24; 1st floor, 14; 2nd floor, 10	24; 1st floor, 14; 2nd floor, 10
Floor Area of Shed (Sq.Ft.)		172,450; 1st floor, 92,450; 2nd floor, 80,000	172,450; 1st floor, 92,450; 2nd floor, 80,000
Load Capacity per Sq.Ft. (Lbs.)		500 lbs. 1st floor; 200 lbs. 2nd floor; 300 lbs. 3rd floor.	500 lbs. 1st floor; 200 lbs. 2nd floor; 300 lbs. 3rd floor.
Cargo Doors		22-ft. 2d & 3d floors, 20 each, 19-by 12-ft. Others, 1 each, 14- by 11-ft. fourteen, 8- by 8-ft.	22-ft. 2d & 3d floors, 20 each, 19-by 12-ft. Others, 1 each, 14- by 11-ft. fourteen, 8- by 8-ft.
SPECIAL HANDLING FACILITIES	None.	Cargo elevators for trucks on roof of transit shed, electric freight elevators. Stevedore equipment available as required.	Cargo elevators for trucks on roof of transit shed, eight 6-ton, electric freight elevators. Stevedore equipment available as required. Two 27½ ton capacity diesel cranes, combined lift capacity of 55 tons, travel on tracks extending the length of Berths Nos. 4, 5, 6, 7, 8, 9, 10.
RAILROAD CONNECTIONS	Surface tracks connect with Pier No. 1 and Pier No. 2. Additional tracks connect with Pier No. 3. Car capacity Connecting Yard connect with N. Y., New Haven and Hartford Railroad.	Surface tracks on Pier No. 1, Berth Nos. 1 and 2 and Pier No. 2, Berth No. 3. Additional tracks connect with N. Y., New Haven and Hartford Railroad.	Surface tracks on Pier No. 1, Berth Nos. 4, 5, 6, 7, 8, 9, and 10, length 1,500 feet, and on Pier No. 2 depressed tracks in front of transit shed as described under Pier No. 112. Connect with N. Y., New Haven and Hartford Railroad.
HIGHWAY CONNECTIONS	Via Terminal Street, Northern Avenue, Pier No. 1, Pier No. 2 and Summer Street (Arterial); surface brick and asphalt, 30 - 70 feet wide.	Same as Pier No. 111.	Same as Pier No. 111.
WATER SUPPLY (Available for Vessels)	None.	Connects to 8" branch connections with meters.	Same as Pier No. 112.
ELECTRIC POWER (Available for Vessels)	None.	A.C., 110 volts, 60 cycles, 440 volts, 60 cycles. Also 220 volts, 25 cycles.	Same as Pier No. 112.
FIRE PROTECTION (Other than City Fire)	Yard hydrants, hose houses, hand extinguishers, fire stations.	Automatic sprinkler system in transit shed, hydrants, hand extinguishers, fire stations.	Same as Pier No. 112.
REMARKS	Pier No. 1 is used for storage of [illegible] Pier No. 2 is used for storage of [illegible] Pier No. 3 is used for storage of [illegible]	Pier No. 1 is used for storage of [illegible] Pier No. 2 is used for storage of [illegible] Pier No. 3 is used for storage of [illegible]	Pier No. 1 is used for storage of [illegible] Pier No. 2 is used for storage of [illegible] Pier No. 3 is used for storage of [illegible]

PIERS, WHARVES, AND DOCKS

South Boston, north side, Reserved Channel

Section of Harbor, Port or Waterway	0701 Boston Harbor, Mass.		
Reference No. (as shown on Key Map)	113 (Corps Code No. 701)	115 (Corps Code No. 701)	117 (Corps Code No. 701)
NAME	Boston Army Base Terminal, North Nos. 6.	Boston Army Base Terminal, North Nos. 7, 8, and 9.	Boston Army Base Terminal, North Nos. 10.
LOCATION OR ADDRESS	913 feet west of east side of terminal.	1,513 feet west of east side of terminal.	2,113 feet west of east side of terminal.
OWNED BY	U. S. Government (leased to Massachusetts Port Authority).	U. S. Government (leased to Massachusetts Port Authority).	U. S. Government (leased to Massachusetts Port Authority).
OPERATED BY	Port Terminals, Inc.	Port Terminals, Inc.	Port Terminals, Inc.
PURPOSE FOR WHICH USED	Receipt and distribution of general and containerized foreign cargo, steel products, and export bulk commodities in foreign and domestic trades.	Receipt and distribution of general and containerized foreign cargo in foreign and domestic trades.	Receipt and distribution of general and containerized foreign cargo in foreign and domestic trades.
TYPE OF CONSTRUCTION	Concrete wall with cantilevered concrete deck, 6-inch steel sheet pile bulkhead with a fill and relieving pile supported concrete deck. Concrete wall on steel piles and fronted by timber and rubber chock fender system.	Concrete wall with cantilevered concrete deck, 6-inch steel sheet pile bulkhead with rock fill and relieving pile supported concrete deck. Concrete wall on steel piles and fronted by timber and rubber chock fender system.	Concrete wall with cantilevered concrete deck, 6-inch steel sheet pile bulkhead with rock fill and relieving pile supported concrete deck. Concrete wall on steel piles and fronted by timber and rubber chock fender system.
DESCRIPTION	Face	Face	Face
Length ft.	540.6	1,641	530 (over fenders)
Depth Alongside at MLW ft.	35	35	35
Usable Berthing Space ft.	540.3	1,641	530
Width of Apron ft.	90+	61	61
Elev. of Deck Above MLW ft.	17.8	17.8	17.8
Load Capacity per Sq. Ft. (lbs.)	600, outer 25-30 feet; 500, in rear.	600, outer 25-30 feet; 500, in rear.	600, outer 25-30 feet, 500, in rear.
Number of Mooring Dolphins	Limited.	Limited.	Limited.
TRANSIT SHEDS	None.	Shed No. 1: one 2-st w steel and concrete, concrete fl ors. Second floor has offices, concrete, cargo (continued, next page)	None.
Number and Type of Construction			
Length and Width (feet)		1,641 by 201.4	
Floor Elevation		29.5, 1st fl; 39-27, 2d fl.	
Floor Area of Shed (Sq. Ft.)		330,000, 1st fl; 330,000, 2d fl.	
Load Capacity per Sq. Ft. (lbs.)		500, 1st fl; 400, 2d fl.	
CARGO SHEDS		Cargo shed No. 1: one-st y steel, concrete fl rs. Second floor has offices, concrete, cargo (continued, next page)	
Number and Type of Construction			
Length and Width (feet)		1,641 by 201.4	
Floor Elevation		29.5, 1st fl; 39-27, 2d fl.	
Floor Area of Shed (Sq. Ft.)		330,000, 1st fl; 330,000, 2d fl.	
Load Capacity per Sq. Ft. (lbs.)		500, 1st fl; 400, 2d fl.	
CARGO SHEDS		Shed No. 1: one-st y steel, concrete fl rs. Second floor has offices, concrete, cargo (continued, next page)	
Number and Type of Construction			
Length and Width (feet)		1,641 by 201.4	
Floor Elevation		29.5, 1st fl; 39-27, 2d fl.	
Floor Area of Shed (Sq. Ft.)		330,000, 1st fl; 330,000, 2d fl.	
Load Capacity per Sq. Ft. (lbs.)		500, 1st fl; 400, 2d fl.	
Cargo Doors		Aprons: 1st fl., seventy-four, 16- by 16-ft; 2d fl., seventy-four, 16- by 16-ft. Rear: 1st fl., seventy-six, 16- by 22-ft.	
MECHANICAL HANDLING EQUIPMENT	Stevedore equipment available as required. Two 27½ ton capacity diesel cranes, combined lift capacity of 55 tons, travel on tracks extending the length of Berths Nos. 4, 5, 6, 7, 8, 9, 10	Steel cargo sheds: roof of transit shed, and floor above, electric elevators. Stevedore equipment available as required. Two 27½ ton capacity diesel cranes, combined lift capacity of 55 tons, travel on tracks extending the length of Berths Nos. 4, 5, 6, 7, 8, 9, 10	Stevedore equipment available as required. Two 27½ ton capacity di... cranes, combined lift capacity of 55 tons, tra... on tracks extending t... length of Berths Nos 4, 5, 6, 7, 8, 9, 10
RAIL CONNECTIONS	Three surface tracks on apron, total length 1,641 ft., connecting with tracks serving adjacent piers, and to surface tracks on land in front of transit shed; 4 additional tracks on terminal and 700+ ft. of track on property land; connect with N. Y. N. H. & H. R. R., New Haven and Hartford Railroad.	Three surface tracks on apron, total length 1,641 ft., connecting with tracks serving adjacent piers, and to surface tracks on land in front of transit shed; 4 additional tracks on terminal and 700+ ft. of track on property land; connect with N. Y. N. H. & H. R. R., New Haven and Hartford Railroad.	Three surface tracks on apron, total length 1,641 ft., connecting with tracks serving adjacent piers, and to surface tracks on land in front of transit shed; 4 additional tracks on terminal and 700+ ft. of track on property land; connect with N. Y. N. H. & H. R. R., New Haven and Hartford Railroad.
HIGHWAY CONNECTIONS	Via Third Street (Route 1), Asphalt, 50 feet wide, with Summer Street (arterial), Granite block and asphalt, 50-75 feet wide.	Same as Ref. No. 114.	Same as Ref. No. 114.
WATER FACILITY (Available to Vessels)	Same as Ref. No. 114. connections with reservoir.	Same as Ref. No. 114.	Same as Ref. No. 114.
WATER FACILITY (Available on Pier)	Same as Ref. No. 114.	Same as Ref. No. 114.	Same as Ref. No. 114.
FIRE PROTECTION (Other than City)	A.F.A., service, hydrants and sprinklers in, and outside of, buildings.	A.F.A., service, hydrants in transit shed, sprinklers in terminal and offices.	A.F.A., service, hydrants, sprinklers in transit shed and offices, and extinguishers.
REMARKS	Rail facilities for both Berths Nos. 10 and 11 provide for a total of 8 tracks for storage of cars. Apron extends 6 feet beyond face of pier for 4 ft. width.	Shed No. 1 has a total area of 330,000 sq. ft. in two floors. Second floor has a clear height of 20 feet. Floor loading is 400 lbs. per sq. ft. Ground floor loading is 500 lbs. per sq. ft. Shed is divided into 4 sections by fire walls. Each section has 2 doors on each side, 1 at each end, and 2 doors in rear. Each section has 2 doors on each side, 1 at each end, and 2 doors in rear.	Freight, including ... in transit shed, is ... terminal, and is ... Terminal rates and ... Apply. Monthly storage ... Berths Nos. 4, 5, 6, 7, 8, 9, 10.

PIERS, WHARVES, AND DOCKS

South Boston, South side, Reserved Channel

Ref. No. (See Key Plan)	120 Dock Code No. -	121 Dock Code No. -	122 Dock Code No. -
NAME	Boston Edison Co., South Boston L Street Coal Dock.	Massachusetts Bay Transportation Authority, Reserved Channel Wharf.	Sinclair Oil Corp., South Boston Marine Wharf.
LOCATION OR NEAREST ST.	Foot of M Street extended.	Between foot of M and O Streets extended.	Between foot of O and P Streets extended.
OWNED BY	Boston Edison Co.	Massachusetts Bay Transportation Authority.	Sinclair Oil Corp., subsidiary of Sinclair, Inc.
OPERATED BY	Not operated.	Not operated.	do.
PURPOSE FOR WHICH USED	Not used.	Not used.	Receipt and shipment of petroleum products by barge.
TYPE OF CONSTRUCTION	Part timber and part concrete bulkhead with solid fill; concrete surfaced in rear of west side.	Timber bulkhead, solid fill, with timber pile, timber-decked extension at face (See Remarks).	Timber bulkhead, solid fill, with timber pile, timber-decked extension.
DESCRIPTION	Face / West side	Face / East side / West side	Face / West side
Dimensions (feet)	400-175 / 320	550 / 520 / 55	270 / 20
Depth Alongside at MLW (ft.)	31-35 / 32-30	25 / - / -	31-33 / -
Usable Berthing Space (ft.)	775-450 / 400	550 / - / -	550 / -
Width of Wharf (ft.)	Open.	Open.	Open.
Height of Deck Above MLW (ft.)	16	16	14
Load Capacity per sq.ft. (lbs.)	-	-	-
Lighting of Wharves	Lighted.	Partly lighted.	Lighted.
TRANSIT SHED	None.	None.	None.
Number and Type of Street Doors			
Length and Width (feet)			
Setback (ft.)			
Floor Area for Cargo (sq.ft.)			
Load Capacity per sq.ft. (lbs.)			
Cargo Doors			
MECHANICAL HANDLING EQUIPMENT	Three steel, traveling, railroad-type loaders on west side of wharf, each with 50-foot reach and 1 vertical boom extending 50 ft. over area in rear; one electric, locomotive, bridge crane with 4-ton capacity clam-shell bucket serves wharf area in rear of property; electric belt conveyor system extends from wharf to storage areas and to electric power plant located in rear of Ref. No. 119 (See Remarks).	None (See Remarks).	None.
RAILWAY CONNECTIONS	Two surface tracks serve open storage area in rear of property on north side of E. First Street, total length 1,700 feet; connect with New York, New Haven and Hartford Railroad.	Five tracks in rear connect with New York, New Haven and Hartford Railroad.	Surface tracks serve tank car loading racks at terminal in rear; connect with New York, New Haven and Hartford Railroad.
HIGHWAY CONNECTIONS	Via L Street (at right angles), 60 feet wide, and E. First Street (access), granite block, 50 feet wide.	Via E. First Street (access), granite block, 50 feet wide.	Same as Ref. No. 121.
WATER SUPPLY (Available to Vessels)	None.	None.	Through hose connections on wharf.
FUEL OIL (Available to Vessels)	None.	None.	None.
FIRE PROTECTION (Other than City)	Hydrants, hand extinguishers, and sprinkler.	Hydrants and watchman.	Chemical carts, hydrants, fire hose and fire connections on wharf, hand extinguishers and sprinkler.
REMARKS	Wharf was built in 1916 for storage of coal and fuel oil at open storage. Coal is loaded by clam-shell bucket crane and conveyor belt system to storage area in rear. Tar paper is manufactured on premises. Coal oil (kerosene) is received at wharf from vessels, stored in tanks in rear, and loaded into tank cars on railroad tracks in rear. Tar is received at wharf from vessels, stored in tanks in rear, and loaded into tank cars on railroad tracks in rear. Fuel oil is received at wharf from vessels, stored in tanks in rear, and loaded into tank cars on railroad tracks in rear. Fuel oil, industrial and No. 1 and 2.	Wharf is leased to Massachusetts Bay Transportation Authority. Property is used for storage of equipment. Property is leased to Massachusetts Bay Transportation Authority. Property is used for storage of equipment. Property is leased to Massachusetts Bay Transportation Authority. Property is used for storage of equipment.	Wharf is leased to Sinclair Oil Corp. Property is used for storage of petroleum products. Property is leased to Sinclair Oil Corp. Property is used for storage of petroleum products. Property is leased to Sinclair Oil Corp. Property is used for storage of petroleum products.

PIERS, WHARVES, AND DOCKS

South Boston, south side, between I Channel

Corps of Engineers Pier No. 11201			South
Track No.	Pier C, No. 1	Pier C, No. 2	Pier D, No. 1
	Atlantic Coast Corp., South Boston wharf.	Atlantic Coast Corp., South Boston wharf.	Castle Island Terminal, Pier No. 11.
LOCATION ON WATERFRONT	East of foot of P Street extended.	East of foot of P Street extended.	East of foot of I Street extended; west portion of terminal.
OWNED BY	Atlantic Coast Corp., subsidiary of Texaco, Inc.	Atlantic Coast Corp., subsidiary of Texaco, Inc.	Massachusetts Port Authority.
OPERATED BY	do.	do.	Mystic Terminals, Inc.
PURPOSE FOR WHICH USED	Receipt of shipment of petroleum products in barges from New York and other ports; in bunkering vessels at berth in harbor; receipt of oil cargo.	Mooring tank barges.	General and shipment of general cargo in foreign and coastwise trade; receipt of lumber, petroleum products, and bulk cement; shipment of scrap metal.
TYPE OF CONSTRUCTION	Timber piles and timber and steel offshore platform with steel approach trestle extends from each side of platform; square timber cells, connected by breasting dolphins in line with each pier; an additional 7 dolphins on each approach trestle (one at shore end, two at each intermediate bent).	Timber piles, timber deck and steel catwalk extends from each side to line with face.	Timber pile, part timber deck with bituminous concrete surface and part concrete deck; fronted by timber fender system.
DESCRIPTION	Face / East side / West side	Face / North side / South side	Face / West side
Dimensions (Ft.)	645 / 50 / 250-27	330 / 50 / 50	700 / 50
Depth Alongside at MLW (Ft.)	40+00 / - / -	30 / - / -	35 / -
Usable Berthing Space (Ft.)	295 (Pier C) / - / -	330 / - / -	700 (Simultaneous)
Width of Apron (Ft.)	Open / - / -	Open / - / -	Open
Height of Deck Above MLW (Ft.)	14	14	15-16
Load Capacity per Sq. Ft. (Tons)	-	-	600
Lighted or Unlighted	Lighted.	Partly lighted.	Lighted.
TRANSIT SHED	None.	None.	None.
Number and Type of Construction			
Length and Width (Feet)			
Height Inside (Ft.)			
Floor Area for Cargo (Sq. Ft.)			
Load Capacity per Sq. Ft. (Tons)			
Cargo Doors			
MECHANICAL HANDLING FACILITIES	Steel trestle with electric hoists for handling pipe.	None.	One 5-ton, diesel, crawler crane with 70-ft. boom. Stevedore equipment available as required.
RAILWAY CONNECTIONS	Serves tanks via two 8-in. pipe lines under roads at foot of I Street, connected with New York, New Haven and Hartford Railroad.	See key plan, Ref. No. 123.	Three service tracks on apron, total length 1,200 feet, join additional tracks serving terminal; connect with New York, New Haven and Hartford Railroad.
HIGHWAY CONNECTIONS	Via P Street Street (Private), granite block, 30 feet wide.	See key plan, Ref. No. 123.	Via two-lane road (access), asphalt, 30 feet wide, to E. First Street (private) (1) N, (2) E and Farragut Road, paved, 75 feet wide.
WATER SUPPLY (Available to Vessels)	Pier C, 6 & 2-in. hose connections on each pier.	None.	Three 2-inch hose connections.
ELECTRICITY (Available to Vessels)	None.	None.	A.C., 3 phase, 60 cycle, 440 volts, supplied by Edison Electric Illuminating Co. of Boston. A.C., 220 volts, supplied by Edison Electric Illuminating Co. of Boston.
TYPE OF FUEL (Other than Oil)	Gasoline, kerosene, diesel fuel, lubricating oil, and asphalt.	See key plan, Ref. No. 123.	Gasoline, kerosene, and lubricants.
REMARKS	Loading rate for gasoline, 6,000 gallons per hour; for kerosene, 4,000 gallons per hour; for diesel fuel, 2,000 gallons per hour; for lubricating oil, 1,000 gallons per hour. Pipelines connected to storage tanks on shore. Steel trestle has capacity for 2 tanks.		Pier 11 is used by Mystic Terminals, Inc., for handling pipe, lumber, and bulk cement. Pipe is stored on the pier and loaded on trucks or railroad cars. Lumber is stored on the pier and loaded on trucks. Bulk cement is handled by pneumatic unloaders and stored in silos on the pier. Shipments of scrap metal are loaded from trucks and railroad cars by a 5-ton crawler crane.

PIERS, WHARVES, AND DOCKS
South Boston

Complete Unit 45 (Reed Cole No. 950) Boston Harbor, Mass.

	Ref. No. 126 Dock Code No. 950	Ref. No. 127 Dock Code No. 950	Ref. No. 128 Dock Code No. 950
Name	Castle Island Terminal, North Nos. 1, and 11.	Castle Island Terminal, North Nos. 11 and 12.	Castle Island Terminal, North No. 10.
Location or Address	South side of Reserved Channel, 750 feet east of foot of Farragut Road extended.	South side of Reserved Channel, 1,775 feet east of foot of Farragut Road extended.	Southeast side of Main Ship Channel, at junction with Reserved Channel.
Owned By	Massachusetts Port Authority.	Massachusetts Port Authority.	Massachusetts Port Authority.
Operated By	Mass. Port A.	Mass. Port A.	Mass. Port A.
Purpose for Which Used	Receipt and shipment of general cargo in foreign and domestic trades; receipt of lumber and automobiles.	Receipt and shipment of general cargo in foreign and domestic trades; receipt of lumber and automobiles.	Receipt and shipment of general cargo in foreign and domestic trades; receipt of lumber and automobiles.
Type of Construction	Timber pile, part timber deck with bituminous concrete surface and part concrete deck; fronted by timber fender system.	Timber pile, part timber deck with bituminous concrete surface and part concrete deck; fronted by timber fender system.	Timber pile, part timber deck with bituminous concrete surface and part concrete deck, fronted by timber fender system.

Description	Face	Face	Face
Dimensions (Feet)	1,015 (See Remarks)	1,220	610
Depth Alongside at MLW (Ft.)	30	35	35
Usable Berthing Space (Ft.)	1,015	1,220	610
Width of Apron (Ft.)	51 and open.	40 and open.	Open.
Height of Deck Above MLW (Ft.)	15-16	15-16	15-16
Load Capacity per Sq.Ft. (Lbs.)	600	600	600
Lighting Arrangement	Lighted.	Lighted.	Lighted.
Transit Sheds	Transit Shed No. 2: wooden construction, concrete floor.	Transit Shed No. 1: part brick and part concrete, steel frame, and metal covered, concrete floor.	None.
Number and Type of Construction			
Length and Width (Feet)	540 x 150	540 by 230-150	
Height Inside (Ft.)	20	20	
Floor Area for Cargo (Sq.Ft.)	150,000	~110,000	
Load Capacity per Sq.Ft. (Lbs.)	600	600	
Cargo Doors	Southside: forty-two, 16- by 16-foot; Rear: forty-two, 12- by 19-foot also, rail platform; West end: one, truck entrance door.	Southside: Eight 18- by 16-foot; Rear: Twenty-one 14- by 16-foot along rail platform.	
Mechanical Handling Facilities	Stevedore equipment available as required.	Same as Ref. No. 126.	Same as Ref. No. 126.
Railroad Connections	Two connecting surface tracks on apron, total length 2,022 feet, and 2 platform-level tracks along rear of transit shed, total length 1,080 feet, join additional trackage serving terminal, connect with New York, New Haven and Hartford Railroad.	One 1,220-foot surface track and 3 platform-level tracks along rear of transit shed, total length 2,880 feet, join additional trackage serving terminal, connect with New York, New Haven and Hartford Railroad.	Two connecting surface tracks on apron, total length 1,220 feet, join additional trackage serving terminal, connect with New York, New Haven and Hartford Railroad.
Highway Connections	Via Northern Road (Access), 40 ft. 30 feet wide, from E. First Street, granite 51-ft. 30 feet wide, and Farragut Road, paved 75 feet wide.	Same as Ref. No. 126.	Same as Ref. No. 126.
Water Supply (Available to Vessels)	Yard: 2-inch hose connections.	Same as Ref. No. 126.	Same as Ref. No. 126.
Electric Current (Available to Vessels)	A.C., 3-phase, 60 cycles, 440 volts; A.C., 2-phase, 60 cycles, 220 x 110, 4-phase, 60 cycles.	Same as Ref. No. 126.	Same as Ref. No. 126.
Fire Protection (Other than Water)	Yard: 2½-inch hose, hydrants, and watchmen.	Same as Ref. No. 126.	Hydrants, hose, and watchmen.
Remarks	Limited rail access to apron; 40 ft. of transit shed and 10-ft. bay covered concrete rail platform front rear of transit shed. Apron area 22 acres. Transit shed area provided in rear of transit shed. Transit shed is of wood and steel construction with wood and steel roof. Ref. No. 291.	Limited rail access to wharf area; 40 feet of transit shed and 10-ft. bay covered rail platform along rear of transit shed. Apron area 10.15 acres of concrete, with a limited degree of transit shed. Transit shed is also used for storage of cargo which needs [illegible] Ref. No. 291.	Railway tracks have access to wharf area. Apron area 55,000 square feet of paved, open storage area in rear.

PIERS, WHARVES, AND DOCKS

	Pier No. 4	Pier No. 5	Pier No. 6
	Castle Island Terminal, North No. 12.	Gulf Oil Corp., Boston Bulk Plant Wharf.	City of Boston, Boston Navy Yard Station Wharf.
	South side, north end of East Side of Reserved Channel.	Northeastern Commercial Pier 1, East Side of Reserved Channel, North of foot of Victory Road.	Dorchester, Commercial Point, Inlet to Old Colony River, foot of Sagamore Street.
	Massachusetts Port Authority.	Gulf Oil Corp.	City of Boston.
	Sea-Land Service, Inc.	Gulf Oil Corp.	Not operated.
	Receipt and shipment of various mixed general cargo in foreign and domestic trades.	Receipt of petroleum products by barge.	Not used (see Remarks).
	Old-fashioned timber pier, part timber deck, part bituminous concrete surface on timber piles. Fronted by 2 rows of timber piles, concrete-filled fender at timber fender system along face.	Timber, bulkhead, solid fill, part fronted by timber pile, transverse wooden extension.	Two slips inside steel framed buildings with concrete floor supported by timber piles.
	Face	Face	Slips
(feet)	800	210-240	Two 40 each, approx.
Pier	30	50-5	-
Berthing Space (lin. ft.)	800	600-140	160 by 40 each, approx.
Apron (lin. ft.)	Open.	Open.	Open.
Deck Edge (lin. ft.)	15-6	14	20, floor of building.
Capacity (lb. per Sq.Ft. floor area)	600	-	-
Covered or Uncovered	Uncovered.	Unlighted.	Partly lighted.
Shed Space	None.	None.	None.
Number and Type of Construction			
Overhead Width (feet)			
Height (ft.)			
Floor Area (sq. ft.)			
Capacity (lb. per Sq.Ft. floor area)			
Doors			
MECHANICAL HANDLING EQUIPMENT	One 25-ton locomotive crane, diesel driven, gasoline with revolving platform and boom of approximately 50 ft. radius. Crane travels on track in front of pier. Tractor-trailers are used to transport cargo to and from pier. Open area in rear, this area of pier also extends full width of pier, 5 slips and an area of approximately 70 acres and is given over to storage, the latter having approximately 400 containers.	None.	None.
RAIL CONNECTIONS	Two connecting railroad tracks on approximately 1,000 feet of additional trackage serving terminal connect with New York, New Haven and Hartford Railroad.	None.	None.
WAY CONNECTIONS	Via Interstate Route (through) approach, 50 feet wide, to B.T. Parker Street, granite block, 2 lanes each separated by 4 ft. park, 70 feet wide.	Via West 1st Road (closed) to fully paved, two lane road. For Northeast and Southeast Expressway.	Same as Pier No. 130.
WATER SUPPLY (Available to Vessels)	Through 2-in. hose connections.	None.	None.
ELECTRIC POWER (Available to Vessels)	440, 220, 110 volt, 3 phase, 60 cycle AC, 220 volt, 3 phase, 60 cycle.	None.	None.
PROTECTION (Other than City)	Hydrants, hose and extinguishers.	Hand extinguishers.	None.
REMARKS	Sea-Land Service, Inc., is a Marine Export Division of R. J. Reynolds Industries, Inc. Sea-Land Service, Inc., is a containership operator with terminal facilities in Boston, New York, Newark, Elizabeth, Jacksonville, Florida, Puerto Rico, Europe and the Far East.	Terminal facilities consist of tanks, pipelines, pumping equipment, etc.	Slips 1 and 2 are used for the loading and unloading of containers. Slip 3 is used for the loading and unloading of containers and general cargo. Slip 4 is used for the loading and unloading of containers and general cargo. Slip 5 is used for the loading and unloading of containers and general cargo.

PIERS, WHARVES, AND DOCKS

Bridgeport, Fell Lines, Naugatuck River

	1-2 Lock Code No. 011	1-3 Lock Code No. 011	1-4 Lock Code No. -
NAME	O. G. Kelley & Co. Pier.	James D. Shea wharf.	Metropolitan Petroleum Co. of Massachusetts Pier.
LOCATION ON WATERFRONT	East of Water Street.	Adjacent to northeast side of Massachusetts Bay Transit Authority Bridge.	West of northeast side of Fort Avenue Bridge.
OWNED BY	O. G. Kelley & Co.	James D. Shea.	Metropolitan Petroleum Co. of Massachusetts, Lessee of The Pennsylvania Co.
OPERATED BY	do.	do.	Not operated.
PURPOSE FOR WHICH USED	Shipping out of fabricated steel by barge.	Mooring small vessels.	Not used (New Bedford).
TYPE OF CONSTRUCTION	Timber bulkhead, solid fill, partly concrete-paved (See Remarks).	Heavily bulkhead, solid fill with timber pile, timber locked extension along face and timber fender piles along northeast side.	Heavily bulkhead solid fill treated by timber fender piles.
DESCRIPTION	Face	Face / Northeast side	Face
Transit shed (Length, ft.)	200	80 / 200	300
Depth At Section of Wharf (ft.)	Bridge.	0-0 / Bridge.	0-0
Usable Berthing Space (Length, ft.)	200	80 / 150, approx.	150, approx.
Width of Wharf (ft.)	Open.	Open.	Open.
Height of Face Above MLW (ft.)	10.2	12 / -	14 / -
Load Capacity per Sq.Ft. (tons)	-	Unlighted.	Partly lighted.
Lighted or Unlighted	Unlighted.		
TRANSIT SHED	None.	None.	None.
Number and Type of Construction			
Length and Width (Feet)			
Height Under (Ft.)			
Floor Area for Cargo (Sq.Ft.)			
Load Capacity per Sq.Ft. (tons)			
Cargo Doors			
MECHANICAL HANDLING FACILITIES	None.	None.	None.
RAILWAY CONNECTIONS	None.	None.	Two narrow gauge tracks (1 foot, total length 60) in Yard, connect with New York, New Haven and Hartford Railroad.
HIGHWAY CONNECTIONS	Via water Street (approach), gravel, 25 feet wide, to Goldfield Street.	Via Taylor Street (arterial), asphalt, 25 ft wide and Seaside Street, (approach), gravel, 15 feet wide.	Via Taylor Street (arterial), asphalt, 25 feet wide, to Seaside Street (arterial), gravel, 10 feet wide.
WATER SUPPLY (Available to Vessels)	None.	None.	None.
FUEL OIL SUPPLY (Available to Vessels)	None.	None.	None.
FIRE PROTECTION (Other than City)	Water Co.	None.	Watchman.
REMARKS	Pier is reported to have collapsed in part and is not in use. 75 feet of it is gone.		Part of pier collapsed and has been removed. Berth is used by barges and tugs in repair of small craft. Depth is approximate. Berth is used by barges and tugs in repair of small craft. Total of 3 tracks with capacity of 3 cars are owned by railway from tracks.

PIERS, WHARVES, AND DOCKS

Quincy

REFERENCE NO. (See Map No. 5)	115 Dock Code No. 910	120 Dock Code No. 920	137 Dock Code No. 921
NAME	Murray & Tregurtha Pier.	Boston Boat & Engine Co. Pier.	Quincy Adams Marine Basin Pier.
LOCATION ON WATERFRONT	Right bank of Neponset River, between Wharf No. 1 (nearest Adamsville) and Neponset Avenue Bridge.	Right bank of Neponset River, approximately 800 feet above Neponset Avenue Bridge.	South side of Town River Bay, 200 feet west of foot of Wilson Road.
OWNED BY	Murray & Tregurtha, Inc., division of Matheson Victaulic works, Inc.	Boston Boat & Engine Co.	Quincy Adams Marine Basin, Inc.
OPERATED BY	do.	do.	do.
PURPOSE FOR WHICH USED	Mooring small company-owned vessels for installation and testing marine equipment.	Mooring various types of small vessels for repairs.	Mooring various types of small vessels for repair (see Remarks).
TYPE OF CONSTRUCTION	Timber pile, timber-decked pier.	Timber pile, timber-decked pier with 120- by 40-foot barge moored along north side; line of mooring posts across face and at sides of barge.	Timber pile, timber-decked pier with marine floats along face and both sides; additional 75 feet of berthing space available along timber bulkhead at inner end of east side.

DESCRIPTION	Face	Southeast side	Northeast side	Face	South side	North side	Face	East side	West side
Dimensions (Feet)	50	100	100	8	70	140	12	270	300
Width Alongside at Low Water (Ft.)	-	10	10	1	-	-	12	12	12-0
Usable Berthing Space (Ft.)	20	100	100	90 at floats	50	50	12 at floats	180 at floats	110 at floats
Width of Apron (Ft.)	Open.			Open.			Open.		
Height of Deck Above MLW (Ft.)	16			10			13, pier; 2, floats.		
Live Capacity per Sq. Ft. (Lbs.)	-			-			-		
Lighted or Unlighted	Lighted.			Lighted.			Unlighted.		
TRANSIT SHED	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Height to Eave (Ft.)									
Floor Area per Story (Sq. Ft.)									
Live Capacity per Sq. Ft. (Lbs.)									
Cargo Doors									

MECHANICAL HANDLING FACILITIES	One 30-ton, electric, stiff-leg derrick with 50-foot boom on deck sheet.	None.	Small craft are lifted into and out of the water at east end of bulkhead by use of a gantle crane equipped with 50-foot boom and slings.
RAILWAY CONNECTIONS	None.	None.	None.
HIGHWAY CONNECTIONS	Via private driveway (asphalt), partly paved, 15 feet wide, to Peacock Street (arterial), paved, 45 feet wide.	Via Dock Street (approach and access), gravel, 16 feet wide, from Bank on Street (arterial), paved, 45 feet wide.	Via private driveway (gravel), partly paved, 10 feet wide, from Parker Street (approach and arterial), asphalt, 25 feet wide.
WATER SUPPLY (Available to Vessels)	Through branch line.	Through hose line.	Through small hose line.
ELECTRIC POWER (Available to Vessels)	A.C., 110 volts, single-phase, 60-cycle. A.C., 220 volts, 3-phase, 60-cycle.	-	A.C., 110 volts, single-phase, 60-cycle.
FIRE PROTECTION (Other than Water)	Fire extinguishers and hydrant.	Hand extinguishers.	Hydrants, hose, hand extinguishers, and watchmen.
REMARKS	Pier equipped with 110- to 440-volt, 3-phase, 60-cycle and 220-volt, 60-cycle, single-phase, and diesel fuel available.	One 15-ton marine railway located adjacent to the south side of the barge at foot of pier. Railway is used by marine engineers for inspection of boat repair buildings and others. Open boat storage area in rear. At time of survey, repair work was being performed by personnel of boat repair buildings and others.	At time of survey, repair work was being performed by personnel of boat repair buildings and others. Two parallel cranes partially in operation. Two parallel cranes partially in operation. Two parallel cranes partially in operation.

PIERS, WHARVES, AND DOCKS
Quincy, south side, Town River

Corps of Engineers Full Code No. 00212 Boston Harbor, Mass.

REFERENCE NUMBER ON MAP NO. 5	138 Dock Code No. 925	139 Dock Code No. 925	140 Dock Code No. 928
NAME	John J. Deane, Lumber Yard Wharf.	Quincy Lumber Co. Wharf.	Quincy Oil Co., Plant No. 6, Lower Oil Terminal Wharf.
LOCATION ON WATERFRONT	Approximately 200 feet west of junction with Town Branch Canal.	East side of junction with Town Branch Canal, foot of Mill Street.	North foot of Edison Park Street extended.
OWNED BY	John J. Deane Co.	Quincy Lumber Co.	Quincy Oil Co.
OPERATED BY	do.	do.	do.
PURPOSE FOR WHICH USED	Occasional mooring of barges.	Occasional mooring of various types of small vessels.	Receipt and shipment of petroleum products; occasional mooring of company-owned tank barges.
TYPE OF CONSTRUCTION	Timber pile, timber-decked pier; mooring dolphins in line with face.	Part old fort and part masonry bulkhead, filled till, with timber pile, timber-decked extension.	Timber pile, timber-decked wharf with 125- by 40-foot [illegible] approach and [illegible] from shore to east end of wharf; rectangular-shaped mooring [illegible] in line with face connected by walks to sides of wharf.

DESCRIPTION	Face	East side	West side	Face	East side	West side	Face	East side	West side
Dimensions (Ft.)	97	30	30	400-150	110	85-425	77	20	25
Depth Alongside at MLW Ft.	8.5	-	-	0-0	-	-	32	-	-
Usable Berthing Space Ft.	100 w dolphs	-	-	400 120	-	-	150 w dolphs	-	-
Width of Apron Ft.	Open.			Open.			Open.		
Height of Deck Above MLW Ft.	13-11			14			14		
Load Capacity per Sq.Ft. (Lbs.)	-			-			-		
Electric or Unlighted	Unlighted.			Unlighted.			Lighted.		
TRANSIT SHED	None.			None.			None.		
Number and Type of Construction									
Length and Width (Feet)									
Recent Inside Ft.									
Floor Area for Cargo (Sq.Ft.)									
Load Capacity per Sq.Ft. (Lbs.)									
Cargo Doors									

MECHANICAL HANDLING FACILITIES	Two 15 cranes described under Ref. No. 141.	Gasoline lumber carriers and gasoline fork lift trucks serve open lumber storage area in rear.	One breastmounted crane.
RAILWAY CONNECTIONS	None.	None.	None.
HIGHWAY CONNECTIONS	Via Southern Artery (arterial and marginal), asphalt, 75 feet wide.	Same as Ref. No. 138.	Same as Ref. No. 138.
WATER SUPPLY (Available to Vessels)	None.	None.	Through one 2-inch line.
ELECTRIC CURRENT (Available to Vessels)	None.	None.	None.
FIRE PROTECTION (Other than City)	Hydrants, hose, and watchmen.	Hydrants and hose.	Foam system and hand extinguishers.
REMARKS	Open area and buildings in rear used for storage of scrap materials.		Two 12-, [illegible] pipelines extend from wharf to steel, elevated tanks, [illegible] 240,320 barrels. Tank vessels at wharf can be supplied with fuel if needed.

PIERS, WHARVES, AND DOCKS

Quincy, Massachusetts, Fore River

Corps of Engineers Port Code No.	00712		
Reference Number on Map	141	142	143
USE	John J. Ivers Co. Steel Yard wharf.	Lincoln Oil Co. No. 11.	Bethlehem Fore River Works wharf.
LOCATION OR NAME OF WHARF	Foot of Fore River Bridge at Quincy.	Foot of N Road Street.	Between foot of Greenwood and Piatt Streets.
OWNED BY	John J. Ivers Co.	Lincoln Oil Co. (See Remarks.)	Bethlehem Development Corp.
OPERATED BY	Co.	Not operated.	Bethlehem Fore River Marine, Inc.
PURPOSE FOR WHICH USED	Mooring for oil barges, tugs, and various types of all conventional vessels.	Not used.	Mooring for barges and merchant vessels (See Remarks).
TYPE OF CONSTRUCTION	Wooden pile, solid fill with timber pile, timber-decked extension.	Timber pile, timber-decked finger platform with 100- by 6-foot approach, 2 mooring dolphins in line of berth face	Steel sheet pile, timber-decked platform with 6-foot approach and 2 mooring dolphins at face and southeast side.
DESCRIPTION	Face / East side / West side	Face / Northeast side / Southwest side	Face / Southeast side / Northeast side
Dimensions (feet)	250 / 75 / 70	40 / 40 / 40	200 / 125 / 250
Depth Alongside at MLW (ft.)	6 / - / -	0 / - / -	35 / 17-0 / 15-0
Usable Length, Berthing (ft.)	240 / - / -	150 (2 dolphins) / - / -	200 / 200 (at finger) / -
Depth of Apron (ft.)	Over.	Open.	Open.
Height of Face Above MHW (ft.)	16	14	24
Load Capacity per Sq.Ft. (lbs.)	600	-	-
Lighted or Unlighted	Unlighted.	Unlighted.	Partly lighted.
TRANSIT SHED	None.	None.	None.
Number and Type of Construction			
Length and Width (feet)			
Height Inside (ft.)			
Floor Area (Sq.Ft.)			
Load Capacity per Sq.Ft. (lbs.)			
Cargo Stored			
MECHANICAL HANDLING FACILITIES	Line 25- to 10-ton, diesel and electric, crawler cranes with 50- to 60-foot booms and 1 1/2- to 3 4-cubic yard clam or bucket. Cranes are also equipped for electric magnet.	None.	None.
RAILWAY CONNECTIONS	None.	None.	None.
HIGHWAY CONNECTIONS	Via Bacon Street (approach and access), 40, 45, 20 feet wide, from Southern Artery.	Via N Road Street (approach and access), paved, 20 feet wide.	Via a road (approach and access), paved, 20 feet wide, from Washington Street.
WATER SUPPLY (Available for Vessels)	None.	None.	None.
ELECTRIC CURRENT (Available for Vessels)	None.	None.	None.
FUEL OIL (Other than Bunker)	Piped by 8-inch and 4-inch lines.	None.	Piped by 8-inch and 4-inch lines.
REMARKS	Can also be used for loading and unloading of vessels at anchorage. Tracks parallel to wharf.	Only one berth available at a time. Entire terminal [illegible] 42 to 45 feet [illegible]	[illegible]

PIERS, WHARVES, AND DOCKS
(Cont'd)

Location of Water Front (Code No.)	New Haven Harbor, Conn.			Quinn					
Reference No. (on Map No. 1)	141	Dock Code No. 201		142	Dock Code No. 202		143	Dock Code No. 203	
Name	Pure Oil Corp., Quinn Terminal Wharf.			Procter & Gamble Quinn Factory Wharf.			General Dynamics Corp., Quinn Division, Pier No. 1.		
Location or Address	On the south side of Quinn Street, north side of Sullivan Court, west of junction with New Haven Terminal Railroad.			On the south side of Quinn Street, on the bank of west side of Mill River between Long Island Sound and Washington Street Bridge.			On the east bank of Mill River, about [illegible] feet south of Washington Street Bridge, 200 feet above Washington Street Bridge.		
Owned by	Pure Oil Corp.			Procter & Gamble Manufacturing Co.			General Dynamics Corp., Quinn Division.		
Operated by	do.			do.			do.		
Purpose for which used	Receipt and shipment of petroleum products.			Receipt of vegetable oil, crystal caustic soda, and liquid silicate of soda.			Marine vessels for repair, alteration and conversion, mooring fleet, dry-dock.		
Type of Construction	Part timber and part steel fender system, concrete decked platform on steel piles with floor by timber approach from storage tank area in rear; timber fenders, dolphins and mooring piles to 50-foot steel pile, concrete-capped, rectangular-shaped marginal dolphins in line with face, connected to wharf by catwalk.			Combination timber deck and bulkhead, in part fill, a row of pile, all covered outside in general alignment with face, with catwalk extending from bulkhead to the dolphin.			Steel sheet pile bulkhead, main fill, with steel pile, concrete-filled extension, timber fender system along face.		
DESCRIPTION	Face	East side	West side	Face	Southwest side	Northeast side	Face	East side	
Length (Feet)	90	50	30	150	50	50	710	168	
Depth Alongside at Mean Low Water (Feet)	30	-	-	30	-	-	31-35	-	
Usable Berthing Space (Ft.)	370 (depths)	-	-	450 w depths	-	-	500	-	
Width of Pier (Ft.)	50			Open.			Open.		
Height of Deck Above Mean Low Water (Ft.)	Nos. 1, wharf, 13, concrete dolphins.			15.5			16.1		
Load Capacity (Lbs. per Sq. Ft.)	-			300			600		
Fender System Provided	Timber.			Lighted.			Lighted.		
TRANSIT SHED	None.			None.			None.		
Number and Type of Construction									
Length Each (Feet)									
Width (Feet)									
Floor Area (Sq. Ft.)									
Cargo Capacity (Tons)									
Cargo Doors									
MECHANICAL HANDLING FACILITIES	Steel truss handling crane mounted on elevated steel-framed platform.			None.			One electric, traveling, revolving, high-tower, full-portal, lattice-boom crane with 90-foot boom and 40-foot gantry, and a lift capacity of 40 tons at 50-foot radius and 12 tons at 110-foot radius; crane is also equipped with a whip hoist with a lifting capacity at 150-foot radius. Cranes can be operated together with a combined lifting capacity of 80 tons.		
RAILWAY CONNECTIONS	Surface track serves wharf and loading tracks in rear, connecting with 5 receiving tracks with N. Y., New Haven and Hartford Railroad.			One surface track serves plant in front connecting with New Haven Railroad and N. Y., New Haven and Hartford Railroad.			One surface track in road serves industrial tracks serving shipyard, connects with New Haven Railroad, New York, New Haven and Hartford Railroad.		
HIGHWAY CONNECTIONS	Via private drive-way to Quinn Street, paved, 24 feet wide, to Washington Street (arterial).			Same as Ref. No. 141.			Via private road, paved, varied widths, to Quinn Street (marginal), asphalt, 30 feet wide.		
Water Supply (Available for Fire Use)	None.			None.			Through one 8-inch line.		
Fire Protection (Available for Fire Use)	None.			None.			Available as noted.		
Fire Protection (Available for City)	Sprinkler system and fire extinguishers.			Fire hose, hand extinguishers, and sprinkler.			Fixed fire protection, hydrants, fire extinguishers, and [illegible]		
Remarks	Pipeline from [illegible] to 21 steel storage tanks [illegible] north side of Quinn Street, total capacity [illegible] barrels.			[illegible] berth, [illegible] tanks in rear.			[illegible] Berth No. 1, [illegible] Ref. No. 142).		

PIERS, WHARVES, AND DOCKS

Quincy, Mass. Fore River

Corps of Engineers Dock Code No. 1511 Boston Harbor, Mass.

REFERENCE SECTION OR DOCK NO.	147 Dock Code No. 1511	148 Dock Code No. 1401	149 Dock Code No. 1511
NAME	General Dynamics Corp., Quincy Yard, Pier No. 1.	General Dynamics Corp., Quincy Yard, Pier No. 2.	General Dynamics Corp., Quincy Yard, Pier No. 3.
LOCATION OR ALIGNMENT	Between U.S. Pierhead Line No. 3, approximately 0.6 mile above Washington Street Bridge.	South side of Pier No. 1, approximately 0.6 mile above Washington Street Bridge.	Approximately 0.6 mile above Washington Street Bridge.
OWNED BY	General Dynamics Corp., Quincy Division.	General Dynamics Corp., Quincy Division.	General Dynamics Corp., Quincy Division.
OPERATED BY	do.	do.	do.
PURPOSE FOR WHICH USED	Working vessels for repair, outfitting, and conversion.	Working vessels for repair, outfitting, and conversion.	Working vessels for repair, outfitting, and conversion.
TYPE OF CONSTRUCTION	Outer section: steel H-piles, concrete deck; inner section: pier masonry and part concrete pile bent walls, steel pile, concrete cover; 10-foot wide timber pier; reduced extension filled with rock fronted by timber fender dolphins.	Concrete bulkhead, steel H-piles, with steel pile, concrete-decked extension.	Concrete bulkhead, asphaltic concrete surfaced solid fill, with timber access working platform supported by timber piles.
DESCRIPTION	Face / South side / North side	Face	Face
Dimensions (Feet)	455 / 820 / 820	855	560
Depth Alongside at MLW (Ft.)	35-50 / 40-50 / 50	50	50
Usable Berthing Space (Ft.)	455 / 820 / 650	950	560 (See Remarks).
Width of Apron (Ft.)	Open	Open	Open
Height of Fender System Above MLW (Ft.)	15.5	15.5	15.5
Load Capacity (Tons per Sq. Ft.)	600	600	600
Lighted or Unlighted	Lighted.	Lighted.	Lighted.
TRANSIT SHED	None.	None.	None.
Number and Type of Construction			
Length and Width (Feet)			
Height Inside (Ft.)			
Floor Area for Cargo (Sq. Ft.)			
Load Capacity per Sq. Ft. (Tons)			
Cargo Doors			
MECHANICAL HANDLING FACILITIES	Two electric, traveling, revolving, high-level, full-portal gantry cranes; outer crane equipped with 150-foot boom and has a lift capacity of 50 tons at 75-foot radius and 27 tons at 125-foot radius; inner crane equipped with 100-foot boom and has a lift capacity of 50 tons at 75-foot radius and 14 1/2 tons at 95-foot radius; also equipped with 90-foot mast and 140-foot gantry for lifting at 110-foot radius. (See Remarks.)	One electric, traveling, revolving, high-level, full-portal gantry crane with lift capacity of 27 1/2 tons at 75-foot radius and 14 1/2 tons at 95-foot radius, also equipped with 90-foot mast and 140-foot gantry for lifting at 110-foot radius. (See Remarks.)	Two electric, traveling, revolving, high-level, full-portal gantry cranes, each with lift capacities of 15 tons at 60-foot radius and 10 tons at 80-foot radius. Cranes can be operated together with a combined lifting capacity of 30 tons.
RAILROAD CONNECTIONS	Shipyard tracks connect with Fore River Yard of New York, New Haven and Hartford Railroad.	Tracks connect with Fore River Yard of New York, New Haven and Hartford Railroad.	Tracks connect with Fore River Yard of New York, New Haven and Hartford Railroad.
HIGHWAY CONNECTIONS	Via private plant roadways (concrete, paved, varied widths, from Fore River Street (Granite), asphalt, 40 feet wide.	Same as Ref. No. 147.	Same as Ref. No. 147.
WATER SUPPLY (Available for Vessels)	Through one 8-inch line.	Through one 8-inch line.	Through one 8-inch line.
FUEL OIL (Available for Vessels)	Not available as loaded.	Not available as loaded.	Not available as loaded.
FIRE PROTECTION (Other than City)	Plant fire protection system, consisting of [illegible]	Same as Ref. No. 147.	Same as Ref. No. 147.
REMARKS	All [illegible] Fore River [illegible] the water [illegible] Channel [illegible] Shaft under [illegible] Pier No. 1, [illegible]	[illegible] Pier No. 1, with Pier No. 2 Ref. No. 147).	[illegible] Class F Buoys 1, 2, [illegible]

PIERS, WHARVES, AND DOCKS

Reference:

Port Code No. (U.S.C.G.)	[illegible] Boston Harbor, Mass.		
Facility No. (Port Code No.)	150 Dock Code No. 151	151 Dock Code No. 151	152 Dock Code No. [illegible]
Name	General Dynamics Corp., Quincy Division, wet basin No. 2, north side.	General Dynamics Corp., Quincy Division, wet basin No. 2, south side.	Cities Service Oil Co., [illegible] Tower Dock.
Location (Main Channel)	Inner end of wet basin No. 2, approximately 0.50 mile above Washington Street bridge.	Inner end of wet basin No. 2, approximately 0.50 mile above Washington Street bridge.	Inner end of [illegible] approximately 0.50 mile above Washington Street bridge.
Owned by	General Dynamics Corp., Quincy Division.	General Dynamics Corp., Quincy Division.	Cities Service Oil Co.
Operated by	do.	do.	do.
Purpose for which used	Mooring vessels for repair, outfitting, and conversion; occasionally used for heavy commercial cargo lifts.	Mooring vessels for repair, outfitting, and conversion; occasionally used for heavy commercial cargo lifts and mooring floating drydock.	Receipt and shipment of petroleum products.
Type of Construction	Concrete bulkhead with solid fill and approximately 70 feet of steel sheet pile cells with solid fill at east end.	Concrete bulkhead with solid fill.	One 20- and two 40-foot diameter steel sheet pile, [illegible] filled concrete-faced fender dolphins [illegible] 90-ft. steel pile dolphins [illegible] 70-ft. steel pile dolphins, timber approach to center dolphin, and timber walk connects center and west dolphins.

Description	Face		Face	East side	Breasting dolphins
Distance (Feet)	900		845	75	215
Depth Alongside at MLW (Ft.)	40		40	-	30-28
Usable Berthing Space (Ft.)	812		355	-	215
Slope (Yes or No)	Open.		Open.		Open.
Height of Deck Above MLW (Ft.)	11		14		14-16
Load Capacity per Sq.Ft. (Lbs.)	1,000		1,000		-
Lighted?	Lighted.		Lighted.		Lighted.
Transit Sheds	None.		None.		None.
Number and Type of Construction					
Length of Each (Feet)					
Width (Feet)					
Floor Area (Sq.Ft.)					
Load Capacity per Sq.Ft. (Lbs.)					
Cargo Cover					

Mechanical Handling Facilities	Two 150- and two 15-ton, electric, overhead bridge cranes travel full length of wet basin (See Remarks). The two 150-ton cranes span full width of wet basin and can be operated together with a combined lifting capacity of 300 tons; the two 15-ton cranes span and serve north half of wet basin.	Two 15-ton, electric, overhead bridge cranes travel full length of and span south half of wet basin; one of two 150-ton cranes described in Ref. No. 150.	Small [illegible] crane.
Railway Connections	Shipyard tracks connect to Port Reading via Penn Central and New York, New Haven and Hartford Railroad.	Same as Ref. No. 150.	Tracks serving terminal connect to Penn Central via [illegible] with New York, New Haven and Hartford Railroad.
Highway Connections	Via private drive (2 lanes, 24 feet wide) (access), paved, varies slightly from East Howard Street (at wall), asphalt, 40 feet wide.	Same as Ref. No. 150.	Via private drive (2 lanes, 24 feet wide), paved, 40 feet wide from Freeway Avenue (arterial), asphalt, 40 feet wide.
Water Supply (Quantity and Pressure)	Through lines with hose connections.	Same as Ref. No. 150.	None.
Fuel Oil Supply (Available to Vessels)	Available as needed.	Available as needed.	None.
Electric Power (Current and Price)	Direct current, 230 volts; alternating current, 440 volts, 3 phase, 60 cycles.	Same as Ref. No. 150.	440 volts, 3-phase, 60-cycle, and 230 volts, direct current.
Remarks	All ships are moored with stern to wall. Fresh water is supplied at berths. Ships are docked by tugs. Depth of water in channel and basin is [illegible] feet at MLW. Depth of water at head of wet basin is [illegible] feet at MLW. Maximum vessel dimensions are 1,000 feet long, 135 feet wide, and a draft of 35 feet at MLW. Overhead clearance of 150 feet at wet basin entrance and all of the buildings have overhead clearance of 150 feet.	Existing drydock is [illegible] feet long, [illegible] feet wide, and has a depth of [illegible] feet over the sill at mean high water. Dock is [illegible] feet long and [illegible] feet wide. Dock No. 1 is [illegible] feet long and [illegible] feet wide. Dock No. 2 is [illegible] feet long and [illegible] feet wide. Dock No. 3 is [illegible] feet long and [illegible] feet wide. Dock No. 4 is [illegible] feet long and [illegible] feet wide. Dock No. 5 is [illegible] feet long and [illegible] feet wide. Dock No. 6 is [illegible] feet long and [illegible] feet wide. Dock No. 7 is [illegible] feet long and [illegible] feet wide. Dock No. 8 is [illegible] feet long and [illegible] feet wide. Dock No. 9 is [illegible] feet long and [illegible] feet wide. Dock No. 10 is [illegible] feet long and [illegible] feet wide. Dock No. 11 is [illegible] feet long and [illegible] feet wide. Dock No. 12 is [illegible] feet long and [illegible] feet wide. Dock No. 13 is [illegible] feet long and [illegible] feet wide. Dock No. 14 is [illegible] feet long and [illegible] feet wide. Dock No. 15 is [illegible] feet long and [illegible] feet wide. Dock No. 16 is [illegible] feet long and [illegible] feet wide. Dock No. 17 is [illegible] feet long and [illegible] feet wide. Dock No. 18 is [illegible] feet long and [illegible] feet wide. Dock No. 19 is [illegible] feet long and [illegible] feet wide. Dock No. 20 is [illegible] feet long and [illegible] feet wide. Dock No. 21 is [illegible] feet long and [illegible] feet wide. Dock No. 22 is [illegible] feet long and [illegible] feet wide. Dock No. 23 is [illegible] feet long and [illegible] feet wide. Dock No. 24 is [illegible] feet long and [illegible] feet wide. Dock No. 25 is [illegible] feet long and [illegible] feet wide. Dock No. 26 is [illegible] feet long and [illegible] feet wide. Dock No. 27 is [illegible] feet long and [illegible] feet wide. Dock No. 28 is [illegible] feet long and [illegible] feet wide. Dock No. 29 is [illegible] feet long and [illegible] feet wide. Dock No. 30 is [illegible] feet long and [illegible] feet wide. Dock No. 31 is [illegible] feet long and [illegible] feet wide. Dock No. 32 is [illegible] feet long and [illegible] feet wide. Dock No. 33 is [illegible] feet long and [illegible] feet wide. Dock No. 34 is [illegible] feet long and [illegible] feet wide. Dock No. 35 is [illegible] feet long and [illegible] feet wide. 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Terminal receives [illegible] products in bulk from barges and tankers. Tankers moor at [illegible] feet of dock face. Barges moor at [illegible] feet of dock face. Tankers are loaded at [illegible] gallons per hour. Barges are loaded at [illegible] gallons per hour. Tankers are unloaded at [illegible] gallons per hour. Barges are unloaded at [illegible] gallons per hour

PIERS, WHARVES, AND DOCKS

Corps of Engineers Port Code No. and Name or Number on Map	0431 Boston Harbor, Mass.			0431
	U.S. - MAP NO. 3 Dock Code No. 15c		U.S. - MAP NO. 5 Dock Code No. 98a	U.S. - MAP NO. 1 Dock Code No. 097
	Edison Edison Co., Fore Street Station chart.		Boston Edison Co., Fore River Coal and Oil chart.	Lafont Associates chart.
LOCATION OR WATERFRONT	West side, right bank of Weymouth Fore River, approximately 0.15 mile above Washington Street Bridge.		West side, right bank of Weymouth Fore River, approximately 1.40 feet below Washington Street Bridge.	Expert Work, left bank of Weymouth Back River.
OWNED BY	Boston Edison Co.		Boston Edison Co.	Lafont Associates, Inc.
OPERATED BY	Not operated.		do.	do.
PURPOSE FOR WHICH USED	Not used.		Receipt of fuel oil for plant consumption; occasionally used for shipment of fuel oil to other company-owned plants.	Berthing various types of small vessels.
TYPE OF CONSTRUCTION	Offshore wooden dolphins connected by timber catwalk with 60- by 8-foot timber approach extending from shore.		Timber pile, concrete-decked wharf.	Masonry bulkhead with solid fill.
DIMENSIONS	Face		Face / East side / West side	Face
Dimensions (feet)	100		600 / 55 / 40	100, approx.
Depth Alongside at MLW (ft.)	4		30-28 / - / -	15
Usable Berthing Space (ft.)	100		600 / - / -	100, approx.
Width of Apron (ft.)	Open		Open. / -	Open.
Height of Deck Above MLW (ft.)	14-16		14	14
Load Capacity per Sq.Ft. (lbs.)	-		400	-
Lighted or Unlighted	Lighted.		Lighted.	Unlighted.
TRANSIT SHED	None.		None.	None.
Number and Type of Construction				
Length and Width (ft.)				
Height Inside (ft.)				
Floor Area for Cargo (Sq.Ft.)				
Load Capacity per Sq.Ft. (lbs.)				
Cargo Doors				
COAL HANDLING FACILITIES	None.		Two electric, traveling, straight-line, cable-bucket towers on steel trestle, with equalizing 100-foot boom, 2-ton capacity clamshell bucket, and a horizontal retractable belt conveyor for charging coal to ground or to overhead storage bunkers, to plant yard on opposite side of Washington Street in rear of Bldg. No. 101 on which the towers is equipped with swivel chute for loading barges alongside. One electric, traveling bridge crane with 2-ton capacity clamshell bucket serves open coal storage area in rear. (2 additional not included)	None.
RAILWAY CONNECTIONS	None.		None.	None.
HIGHWAY CONNECTIONS	Via private drive to Commercial Street, paved, 20 feet wide, to Washington Street (arterial), asphalt, 55 feet wide.		Same as Pier No. 15a.	Via River Street (access), asphalt, 15 feet wide.
WATER SUPPLY (Available to Vessels)	None.		None.	None.
ELECTRIC CURRENT (Available to Vessels)	None.		None.	None.
FIRE PROTECTION (Other than City)	Hydrants and extinguishers.		Hydrants and extinguishers.	None.
REMARKS	Two 10-inch pipelines extend from end of pier to shore tanks. Fuel oil for this plant is received by tanker and barge at Pier No. 15a. Additional fuel oil is received by tanker at Pier No. 15c. Pier is provided with 4 sets of mooring dolphins, each set consisting of approximately 20 foot piles.		Electric cables carry current at 4160 volts, 3 phase, 60 cycles, from Edison Station to Fore River plant switchgear. Fuel oil for receipt of coal for the plant is received by tanker and barge at Pier No. 15a. Coal is unloaded by two electric, traveling, cable-bucket towers and conveyed to plant yard or to storage bunkers (not in use). Fuel oil is received by tanker and barge at Pier No. 15c. Pier is provided with 4 sets of mooring dolphins, each set consisting of approximately 20 foot piles. Fuel oil is received by tanker at Pier No. 15c.	Only vessels which are used for transporting material for disposal at sea, prior to October 1959, which were owned and operated by the Corps of Engineers, Department of the Army, or chartered by the Department of the Army, or by a firm which was under contract to the Department of the Army, were allowed to moor and ship material. Vessels are not owned, operated or used.

PIERS, WHARVES, AND DOCKS

Name of Facility as Listed in Section I	Pier No. 1	Dock Code No. 927	Dock Code No.	Dock Code No.
NAME	Municipal Coaster Pier.			
LOCATION (Waterway)	Location, right bank of Wyaconda Back River.			
OWNED by	U. S. Government.			
OPERATED by	South Shore Lobster Co.			
PURPOSE FOR WHICH USED	Receipt of lobsters; berthing various types of small craft.			
TYPE OF CONSTRUCTION	Timber pile, timber-covered pier extending from bulkhead with solid fill (See Remarks).			

DESCRIPTION	Face	Lower side	Upper side					
Thickness (Feet)	5	300	300					
Height above/below MLW (Ft.)	15	15-12	15-12					
Usable Platform Width (Ft.)	20	20	20					
Number of Berths	1	1	1					
Freeboard at Mean MLW (Ft.)	-							
Load Capacity per Sq.Ft. (Tons)	-							
Thickness of Planking	-							
Material	None.							
Number and Type of Constructs.								
Length of Apron (Feet)								
Height Above MLW (Ft.)								
Floor Area for Cargo (Sq.Ft.)								
Load Capacity per Sq.Ft. (Tons)								
Cargo Type								

MECHANICAL HANDLING FACILITIES	None.		
RAILWAY CONNECTIONS	Railroad tracks in pier connect with New York, New Haven and Hartford Railroad.		
HIGHWAY CONNECTIONS	Via private driveway (macad.), paved, 10-ft. road area, from State Highway No. 3-A.		
WATER DEPTH (Alongside to Accomm.)	Two (2) feet, mean.		
TIDE RANGE (Alongside to Accomm.)	5 ft.		
TYPE OF VESSELS (Using the Facility)	None.		
REMARKS	Seven wooden floats are located at the outer end of the pier. Two of the floats are 40 ft. long, the others are 20 ft. long. All floats are 10 ft. wide and are primarily used for mooring recreational craft.		

WAREHOUSES

In the port area, eighteen companies operate warehouses having a total of 2,873,930 square feet of dry storage space and 11,422,336 cubic feet of cooler and freezer space; all but one of the warehouses have railroad connections, and all are easily accessible to arterial highways. Diversified handling equipment is maintained by the operators, and special services are provided, including packing and crating, forwarding, pool car distribution, carloading, weighing, stamping, and marking.

The following summary lists the operators and gives the storage capacity of the dry and cold storage facilities which are more fully described under individual reference numbers in the table of Storage Warehouses beginning on page 83. The reference numbers identify warehouse locations on the Port Facilities Maps on pages 104A through 104E of this report

DRY AND COLD STORAGE WAREHOUSES

MAP NO.	S.W. REF. NO.	OPERATOR	STORAGE AREA	
			DRY (SQ.FT.)	COLD (CU.FT.)
		Somerville		
3	1	Mcgrath Storage & Warehouse Co., Inc.....	60,000	400,000
		Charlestown		
3	2	Wiggin Terminals, Inc...	336,500	-
		Waterfront		
3	3	Quincy Market Cold Storage & Warehouse Co.....	-	4,667,563
		Boston		
3	4	Kelso Warehouses, Inc...	143,500	-
3	5	Quincy Market Cold Storage & Warehouse Co.....	-	2,678,000
3	6	Quincy Market Cold Storage & Warehouse Co.....	-	1,640,000
		Cambridge		
3	7	Metropolitan Moving & Storage, Inc.....	50,000	-
		Roxbury		
4	8	New Boston Freezer Co., Inc.....	-	600,000
4	9	Cumberland Cold Storage Corp. of Boston.....	-	300,000

THE PORT OF BOSTON, MASS.

DRY AND COLD STORAGE WAREHOUSES - Continued

MAP NO.	S.W. REF. NO.	OPERATOR	STORAGE AREA DRY (SQ.FT.)	STORAGE AREA COLD (CU.FT.)
		South Boston		
4	10	Federal Warehouse, Inc.	140,000	-
4	11	Service Warehouse Co...	181,000	-
4	12	Warehouse 13, Inc.....	52,500	-
4	13	Warehouse 13, Inc.....	66,500	-
4	14	Boston Wharf Co.....	30,000	-
4	15	Warehouse 13, Inc.....	140,000	-
4	16	Bowker Storage & Distributing Co., Inc....	72,000	-
4	17	Atlas Terminal Stores, Inc.....	153,930	-
4	18	Service Warehouse Co...	47,000	-
4	19	Alden Storage Co.....	60,000	-
4	20	Commodity Warehouse Co.	284,000	-
4	21	Bowker Storage & Distributing Co., Inc....	150,000	-
4	22	Warehouse 13, Inc.....	180,000	-
4	23	Bowker Storage & Distributing Co., Inc....	55,000	-
4	24	Port Terminals, Inc....	60,000	-
4	25	Eastern Storage Warehouse, Inc.....	59,000	-
4	26	Pier Cold Storage Co...	-	1,136,770
4	27	Port Terminals, Inc....	39,000	-
4	28	Port Terminals, Inc....	89,000	-
4	29	Wiggin Terminals, Inc..	370,000	-
		TOTAL.....	2,873,930	11,422,338(1)

(1) Includes 1,806,000 cubic feet of cooler space and 9,616,338 cubic feet of freezer space.

OPEN STORAGE

In addition to the long- and short-term, covered storage facilities for waterborne cargo, open areas are available to the public for storing commodities not requiring protection from the weather. These areas total 47.2 acres, are located at general cargo terminals, and are served by

railroad tracks and improved streets or roadways. The tabulation below gives the operator, location, and size of these areas.

Other terminal operators with waterfront facilities have open storage areas to meet their operational requirements; these areas are not usually available for public use.

OPEN STORAGE AREAS

NEAREST P.W.D. REF.NO.	OPERATOR	STORAGE AREA (ACRES)
12	New York Central Railroad Co. Massachusetts Port Authority, East Boston Pier 1.....	3.2
74	Massachusetts Port Authority, Mystic Pier No. 1.....	2.2
114	Port Terminals, Inc. Massachusetts Port Authority, Boston Army Base Terminal, Berth No. 6.....	1.1
116-117	Port Terminals, Inc. Massachusetts Port Authority, Boston Army Base Terminal, Berth No. 10.....	2.0
125-128	Wiggin Terminals, Inc. Massachusetts Port Authority. Castle Island Terminal, Berths Nos. 11 - 16.....	38.7
	TOTAL.....	47.2

OIL HANDLING AND OIL BUNKERING

Twenty-nine waterfront facilities are equipped to receive and/or ship petroleum products; several are equipped to provide bunkering service for vessels. Large, ocean-going vessels are usually bunkered at berth by tank barges. These barges, with their capacities and sizes, are included in the summary of Floating Equipment on page 91.

The tabulation on the following page gives information on the facilities equipped to handle products: details are given in the table of Piers, Wharves, and Docks, beginning on page 23, under the reference numbers indicated. Tank storage at marine service stations is not included.

OIL HANDLING AND OIL-BUNKERING FACILITIES

P.W.D. REF. NO.	OPERATOR AND/OR USER	STORAGE TANKS NUMBER	STORAGE TANKS CAPACITY (BARRELS)
	East Boston - Chelsea River		
30	State Fuel Co., Inc.	15	595,238
31(1)(2)	Mobil Oil Corp.	78	1,238,000
33	Gibbs Oil Co.	8	430,000
33	Atlantic-Richfield Co.	6	480,000
	Revere - Chelsea River		
34	Sun Oil Co.	8	117,000
34	Northeast Petroleum Corp.	11	427,000
35	Union Oil Co. of Boston	15	1,075,900
	Chelsea - Chelsea River		
36(1)(2) & 37(1)(2)	Gulf Oil Corp.	16	1,392,608
38	Northeast Petroleum Corp.	19	872,955
39	Cities Service Oil Co.	15(3)	318,000
42	Texaco, Inc.	7	257,000
43	Quincy Oil Co.	8	23,800
	Chelsea - Main Ship Channel		
51(1)(2)	Metropolitan Petroleum Co. of Massachusetts, Division of The Pittston Co.	13	579,100
	Everett - Mystic River		
53(1)(2)	Lumble Oil & Refining Co.	48	2,300,000
57(4)	Boston Edison Co.	2	30,000
	Malden - Malden River		
60	Norton Oil Co.	4	28,300
	Somerville - Mystic River		
63	Chevron Oil Co.	4	11,238
64	Pennsylvania Oil Co.	2	23,800
	Charlestown - Mystic River		
66	American Sugar Co.	2	20,000(5)
68	Revere Sugar Refinery	1	1,190(5)
	Cambridge - Inner Basin Canal		
76	Chevron Oil Co.	4	24,060
	Cambridge - Lower Basin		
77	Cambridge Electric Light Co.	1	23,810(5)
78	Cambridge Electric Light Co.	1	23,810(5)
	South Boston - Fort Point Channel		
122	Boston Edison Co.	3	160,000(5)
122	Massachusetts Bay Transportation Authority	1	238(5)
122 & 123 (1)(2)(6)	White Fuel Co., subsidiary of Texaco, Inc.	27	2,305,000
122 & 123	Seaboard Enterprises, Inc.	2	280,000
	Dorchester - Neponset River		
130	Gulf Oil Corp.	8	32,400
	Quincy - Town River		
140	Quincy Oil Co.	13	740,420
144	Mobil Oil Corp.	11	539,127
	Braintree - Weymouth Fore River		
152	Cities Service Oil Co.	21	779,000
	Weymouth - Weymouth Fore River		
154	Boston Edison Co.	2	230,000(5)
	TOTAL	376	15,368,991

(1) Bunkering vessels.
(2) Loading barges for bunkering vessels at berth in harbor.
(3) Twelve additional tanks located at terminal: eight are leased to American Mineral Spirits Co., total capacity 5,570 barrels; and four tanks, total capacity 1,230 barrels, not in use at time of survey.
(4) At time of survey, wharf and storage tanks were being maintained on a standby basis for use in emergencies.
(5) Fuel oil for plant consumption.
(6) Wharf also used for receipt of molasses.

STORAGE WAREHOUSES

(For public warehouses only)

WAREHOUSE LOCATION AND NO.	1 - WSP No. 3	2 - WSP No. 3	3 - WSP No. 3
OPERATOR AND ADDRESS	Mystic Terminal Warehouse Co., Inc. 191 V Grath Highway [illegible]	Atlantic Terminals, Inc. 240 Terminal Street Boston, Mass. 02129	Quincy Market Cold Storage & Warehouse Co. 178 Atlantic Avenue Boston, Mass. 02110
KIND OF SERVICE COMMODITIES USUALLY STORED	Bonded Frozen food and perishables and miscellaneous.	Bonded General merchandise.	Cold Perishable food commodities.
DESCRIPTION Type of Construction	Timber frame, brick walls, mill-type.	Two brick buildings with concrete floors; 2 timber piers, roof-covered building with concrete floors.	Six sections: A, B-C, D, and E, reinforced concrete and brick; F and G, precast, reinforced concrete.
Number of Floors Clear Ceiling Height (ft.) First Floor Upper Floors Pier	1 and basement [illegible] 10, 8 - 10 [illegible]	Two-story and 1-story 10.3 10.3, 20.3, 11.3, 12.0, 8.3 7.3	A, F, & G, 7 to 9; B-C & E, 10; D, 12 10, 12 to [illegible] 10 - 12
ALLOWABLE LIVE LOAD (lbs. per sq. ft.) First Floor Other Floors	[illegible] [illegible]	450 450	A - B-C - D - E - F - G 500 - 600 - 600 - 600 - 600 - Estimated 500 - 600 - 600 - 600 - 600 - Estimated
Total Gross Storage Area (sq. ft.) Area Available for Storage Covered Platform Enclosed Other Piers	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
RAILWAY CONNECTIONS	One at-grade dirt surface, 1 dirt platform-level track, 7-car capacity; connects with rail tracks of Boston and Maine Corp.	Five platform-level tracks, total length 1,120 feet, 50-car capacity; connect with rail tracks of Boston and Maine Corp.	Two platform-level tracks, 16-car capacity; connect with rail tracks of Boston and Maine Corp.
FIRE PROTECTION	A.D.T. service and hand extinguishers.	A.D.T. service; two 1-story buildings have sprinkler system and hand extinguishers.	A.D.T. service, automatic fire alarm, and hand extinguishers; in addition, sections F and G have smoke detector units.
REMARKS	Warehouse location at intersection of Somerville Avenue, Mystic River Bridge Approach, and Medford Street. Two 5-ton, automatic, electric elevators and 15 truck loading stations at platform. Freon refrigerating system with temperature range 32°F. to 34°F.	Warehouses 1 and 2 at terminal end of Medford Street in Charlestown, at rear of transit shed on Mystic Terminals; Mystic River Chart No. 51 (U.S.C. & G.S. No. 70). Seven 2-ton electric elevators, several 1-ton ship booms and 21 gasoline fork lift trucks serving them in 5- to 7.5-ton capacity. Twenty-three truck [illegible]	Warehouse 4 (Mystic Terminal) located at 75 Stanley Avenue off Pleasant Street in Charlestown. Freon refrigeration system with temperature range for coolers 30° F. to 70° F., for freezers to -25° F., and for blast freezer to -40° F. Use of mechanical equipment described under S.W. Ref. Nos. 5 [illegible]

WAREHOUSE LOCATION AND NO.	4 - WSP No. 3	5 - WSP No. 3	6 - WSP No. 3
OPERATOR AND ADDRESS	Mystic Terminal Warehouse, Inc. 1 Union Street, Commercial Street Boston, Mass. 02109	Quincy Market Cold Storage & Warehouse Co. 178 Atlantic Avenue Boston, Mass. 02110	Quincy Market Cold Storage & Warehouse Co. 178 Atlantic Avenue Boston, Mass. 02110
KIND OF SERVICE COMMODITIES USUALLY STORED	Bonded General merchandise.	Cold Perishable food commodities.	Cold Perishable food commodities.
DESCRIPTION Type of Construction	Masonry and brick, wood floors.	Reinforced concrete and brick; concrete and wood floors.	Reinforced concrete and brick.
Number of Floors Clear Ceiling Height (ft.) First Floor Upper Floors Other Floors	[illegible] [illegible] [illegible]	[illegible] [illegible] 10	Eleven 10 10
ALLOWABLE LIVE LOAD (lbs. per sq. ft.) First Floor Other Floors	[illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible]
Total Gross Storage Area (sq. ft.) Area Available for Storage Covered Platform Enclosed Other Piers	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
RAILWAY CONNECTIONS	One at-grade dirt surface, 1 dirt platform-level track, 7-car capacity; connects with the Union Freight Railroad.	Three at-grade dirt surface, platform-level tracks, total length 1,000 feet, 50-car capacity; connects with the Union Freight Railroad.	One at-grade dirt surface, platform-level track, total length 1,000 feet, 4-car capacity; connect with the Union Freight Railroad.
FIRE PROTECTION	A.D.T. service, hand extinguishers, and automatic alarm system.	A.D.T. service, automatic fire alarm system, and hand extinguishers on 1st floor.	A.D.T. service, automatic fire alarm system, and hand extinguishers.
REMARKS	Warehouse location at corner of Commercial Street and Union Street. Three 5-ton, electric, fork lift trucks. Electric motor belt screws operate 20 in. See truck loading station at warehouse.	Warehouses 2 and 3 are located on Commercial Street and Union Street at corner of Commercial Street and Boston Wharf. Seven 2-ton electric elevators, several 1-ton ship booms and 21 gasoline fork lift trucks serving them in 5- to 7.5-ton capacity. Twenty-three truck loading stations. Transportation from Boston, Charlestown.	Warehouse 6 located at corner of S. Market and Commercial Streets. Freon refrigeration system with temperature range for [illegible] 30° F. to 70° F., for freezers to -25° F., and for blast freezer to -40° F. Seven 2-ton electric elevators, and 14 electric pallet jacks. See truck loading stations.

STORAGE WAREHOUSES

(For public merchandise only)

Name and Location on Map	[illegible] No. 3	[illegible] No. 4	[illegible] No. 4
Operator and Address	Wilson Terminal Warehouse, Inc. 141 Presidents Avenue Cambridge, Mass. 02139	New England Produce Cold Storage Co., Inc. One Commercial Wharf Boston, Mass. 02110	Commercial Cold Storage Co. Location 50 Northern Avenue Boston, Mass. 02210
Kind of Business Commodities Usually Stored	Dry. General merchandise and appliances.	Cold. Perishable food commodities.	Cold. Perishable food commodities.
DESCRIPTION Type of Construction	Brick walls; concrete floors.	Steel frame, corrugated aluminum with styrofoam insulation, concrete floor.	Brick and concrete.
Number of Stories Clear Height of Ceiling (feet) First Floor Other Floors	Five and part of basement. 10 10	One. 18	One. 15
Area in Square Feet (Inside Measurements) First Floor Second Floor Basement	 [illegible] [illegible]	 [illegible] [illegible]	 [illegible] [illegible]
Total Area of Fire Walls Area Accessible to Trucks Fire Protection Capacity Loadings	WALL CONSTRUCTION [illegible] Sq. Ft. Brick [illegible] [illegible] [illegible]	FLOOR CONSTRUCTION [illegible] Sq. Ft. Concrete [illegible] [illegible] Corridor	ROOF CONSTRUCTION [illegible] Sq. Ft. Concrete [illegible] [illegible] [illegible]
RAILWAY CONNECTIONS	One surface track, 4-car capacity, connects with rail tracks of Boston and Maine Corp.	One surface track, 1-car capacity, connects at E. the New York, New Haven and Hartford Railroad.	None.
FIRE PROTECTION	-	Automatic fire alarm and sprinkler systems.	A.D.T. service and sprinkler system.
REMARKS	Additional 115,000 square feet is available for storing household goods. Two 4-ton, electric elevators serve upper floors; one 1-ton elevator serves basement. Four 1- to 1 1/2-ton capacity, pneumatic, fork lift trucks. Four truck loading stations.	Warehouse located between Columbia Road and Albany Street in Roxbury. Refrigerating system and plant temperature range +50°F. to -5°F. Four 2-ton, electric, fork lift trucks; 3-4 electric pallet jacks. Six truck loading stations.	Warehouse located at [illegible] Avenue in Roxbury. Refrigeration system and air direct expansion; temperature range +55°F. to -5°F. Pallet jacks and 1 1/4- to 2-ton, electric, fork lift [illegible] are available. Five truck loading stations.

Name and Location on Map	[illegible] No. 4	[illegible] No. 4	[illegible] No. 1
OPERATOR AND ADDRESS	Bedford Warehouse, Inc. 54 Radiat Street Boston, Mass. 02210	Boston Warehouse Co. 50 Midway Street Boston, Mass. 02210	Warehouse Co., Inc. 39 Sysco Street Boston, Mass. 02210
Kind of Business Commodities Usually Stored	Dry. General merchandise.	Dry. General merchandise.	Dry. General merchandise.
DESCRIPTION Type of Construction	Brick, mill-type; wood floors.	Brick, mill-type, wood floors.	Type of brick, metal [illegible] floor.
Number of Stories Clear Height of Ceiling (feet) First Floor Other Floors Basement	Six. 12 12 12	Four. 12 12 12	Six. 9-11 [illegible] [illegible]
Area in Square Feet (Inside Measurements) First Floor Other Floors	 20,000 [illegible]	 [illegible] [illegible]	 [illegible] [illegible]
Total Area of Fire Walls Area Accessible to Trucks Fire Protection Capacity Loadings	WALL CONSTRUCTION [illegible] Sq. Ft. Brick [illegible] [illegible] [illegible]	FLOOR CONSTRUCTION [illegible] Sq. Ft. Wood [illegible] [illegible] [illegible]	ROOF CONSTRUCTION [illegible] Sq. Ft. Wood [illegible] [illegible] [illegible]
RAILWAY CONNECTIONS	One surface track, [illegible] car capacity, connects with railroad N. Y. N. H. & H. R. R. Co.	One surface track, [illegible] capacity, on [illegible] side of warehouse, connects with New York, New Haven and Hartford Railroad yard.	[illegible] connects with New York, New Haven and Hartford Railroad yard.
FIRE PROTECTION	A.D.T. [illegible] and fire alarm and sprinkler system, and hand extinguishers.	[illegible] sprinkler system, and hand extinguishers.	Fire [illegible] alarm and sprinkler systems, and hand extinguishers.
REMARKS	[illegible] Bedford Warehouse in South Boston.	[illegible] Boston Warehouse Co. [illegible] Boston, [illegible] Dorchester stations, respectively.	[illegible] Warehouse Co., Inc. [illegible] Boston.

STORAGE WAREHOUSES

(For public merchandise only)

STORAGE WAREHOUSES

(For public merchandise only)

Name	[illegible]	[illegible]	[illegible]
Operator and Address	[illegible] 47 Fifth Street Boston, Mass. 02102	[illegible] 60 Pittsburgh Street Boston, Mass. 02210	[illegible] Sts. I Westinghouse O'Brien Highway Cambridge, Mass.
Kind of Storage Commodities Usually Stored	[illegible] General merchandise.	[illegible] General merchandise.	[illegible] General merchandise and food com-modities.
Description Type of Construction	Brick, mill-type wood floors.	Brick, mill [illegible] wood floors.	Reinforced concrete.
Number of Floors Clear Height of Each Floor (feet) First Floor Other Floors	Six (basement & 5 above) [illegible] [illegible]	Six and basement [illegible] [illegible]	Eight [illegible] [illegible]
Allowable Floor Loading (lbs. per sq. ft.) First Floor Other Floors	[illegible] [illegible]	250 [illegible]	[illegible] [illegible]
Total Gross Area (sq. ft.) Area Available for Storage General Merchandise Cotton Wool Processing	[illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible] [illegible]
Railway Connections	One track on first floor level runs on S. Station and 2 surface tracks in East Street corner Atl. Ave. New York, New Haven and Hartford Railroad.	Two tracks at first floor level, 10-car capacity, to platform-level tracks, 8-car capacity, along West Street connect with New York, New Haven and Hartford Railroad.	Two platform-level tracks, 6-car capacity, along West Street connect with New York, New Haven and Hartford Railroad.
Fire Protection	Hand extinguishers.	Automatic fire alarm and sprinkler system.	Automatic fire alarm system and hand extinguishers.
Elevators	Situated as indicated in South Station. Two electric elevators serve upper floors. Trucks use rail platform.	[illegible] Station. Four electric elevators serve upper floors. Thirteen truck loading stations.	[illegible] Street, Boston, connected at 52 Fargo Street, southeast corner of Fargo and Fid [illegible] Streets in S [illegible] Station. Two 2-ton, and three 1 1/2-ton, electric elevators. Thirteen truck loading stations.

Name	[illegible]	[illegible]	[illegible]
Operator and Address	Rare Iron Co., Inc. 39 Second Street Boston, Mass. 02210	Bowker Storage & Distributing Co., Inc. St. I Westinghouse O'Brien Highway [illegible]	[illegible] Terminals, Inc. 668 Summer Street Boston, Mass. 02210
Kind of Storage Commodities Usually Stored	[illegible] General merchandise.	[illegible] General merchandise.	[illegible] General merchandise.
Description Type of Construction	Steel frame, brick walls, concrete floors.	Seven section of brick with concrete floors and steel [illegible] floors.	Concrete and steel [illegible] floors.
Number of Floors Clear Height of Each Floor (feet) First Floor Other Floors Basement	Seven (basement & 6 above) [illegible] [illegible] [illegible]	Seven [illegible] [illegible]	Eight [illegible] [illegible] 12'-0"
Allowable Floor Loading (lbs. per sq. ft.) First Floor Other Floors	[illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible]
Total Gross Area (sq. ft.) Area Available for Storage General Merchandise Cotton Wool Processing	[illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible] [illegible]
Railway Connections	[illegible] Station and connected with New York, New Haven and Hartford Railroad.	[illegible] Station and North Terminal.	[illegible] Station and connected with Boston & Maine Railroad, Boston & Albany Railroad, Boston Terminal Company, Northern Railroad and connected with New York, New Haven & Hartford Railroad.
Fire Protection	[illegible]	[illegible]	Sprinkler system, hand extinguishers, and [illegible]
Remarks	[illegible] Fort Point Channel and Summer Street. Wharves [illegible]. Rear [illegible] and [illegible] with Trucks.	[illegible] Fort Point Channel and Summer Street.	[illegible] Fort Point Channel and Summer Street. Rear [illegible] Part 5, 2 [illegible] Inc. Five [illegible] elevators, 2 [illegible] elevators are [illegible].

STORAGE WAREHOUSES

(For public merchandise only)

NAME OF FIRM AND SECTION CAP	[illegible] No. 1	[illegible] No. 1	[illegible] No. 1
OPERATOR AND ADDRESS	[illegible] Co. Commercial Pier 3 Boston, Mass.	[illegible] Co. 300 West Service Road Boston, Mass. 02118	[illegible], Inc. [illegible] Street Boston, Mass. 02210
KIND OF STORAGE COMMODITIES USUALLY STORED	Dry. General merchandise.	Cold. Perishable food commodities.	Dry. General merchandise.
DESCRIPTION Type of Construction	Concrete and steel, concrete floors.	Concrete and steel, concrete floors.	Concrete and steel, concrete floors.
Number of Stories Clear Inside Height (Feet) First Floor Other Floors Basement	1 [illegible] [illegible] [illegible]	One. 19 	Two. 20 [illegible] 11
Allowable Floor Load (Pounds per Sq. Ft.) First Floor Other Floors	[illegible] [illegible]	[illegible] 300	[illegible] [illegible]
Total Gross Floor Area (Sq. Ft.) Area Available for Storage (Sq. Ft.) General Storage Cold Storage Freezer	[illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible] [illegible]
RAILWAY CONNECTIONS	[illegible] track [illegible] of first story, [illegible] side [illegible] shed, each [illegible] two [illegible] of [illegible] level [illegible] 642-car [illegible] Commonwealth Pier and [illegible], [illegible] side of South Boston [illegible] with New York, New Haven and Hartford Railroad.	Same as S.A. Ref. No. 25	[illegible] tracks [illegible] of [illegible] buildings, total [illegible] 2,000 feet, serve North and S [illegible] Pier [illegible], connect with the Penn, New Haven and Hartford Railroad.
FIRE PROTECTION	Sprinkler [illegible], hose, hand extinguishers, and [illegible].	Sprinkler system [illegible] pier [illegible] shed, hydrants, hose, hand extinguishers, and watchmen.	[illegible] system [illegible] sprinkler system, hydrants, hose extinguishers, and watchmen.
REMARKS	[illegible] [illegible] [illegible]

THE PORT OF BOSTON, MASS.

RAIL LINES

The port of Boston, Mass., is served by three, line-haul, rail carriers: the Boston and Maine Corporation; the New York Central Railroad; and the New York, New Haven and Hartford Railroad. These carriers serve the port area via their own rail lines or through the facilities of two switching lines--the Union Freight Railroad and the Fore River Railroad. The Union Freight Railroad operates about 2 miles of track in Boston on Atlantic Avenue and Commercial Street, and connects with the three line-haul carriers serving the port. The Fore River Railroad operates about 2.5 miles of track and extends from Quincy Point, Mass., to Fore River and East Braintree, Mass., connecting with the New York, New Haven and Hartford Railroad at East Braintree.

After field survey for this report, the New York Central and Pennsylvania Railroads were merged, and now operate under the name Pennsylvania New York Central Transportation Company (Penn Central).

HOISTING FACILITIES - ASHORE AND AFLOAT

General cargo is usually handled to and from vessels by ships' tackle or by ships' tackle used in conjunction with cargo booms on transit shed roofs. For the most part, hoisting equipment on the piers and wharves is for the sole use of the operating companies and, to a limited extent, these same facilities may be used for handling heavy lifts for the public. Single lifts up to 150 tons can be made at the Quincy Yard of the General Dynamics Corp. Crawler and mobile truck cranes with lifting capacities up to 150 tons may also be obtained from crane rental services located in the port area.

The McKie Lighter Co. operates two floating derricks for heavy-lift work at shipside throughout the Boston port area. These cranes, one with lift capacity of 50 tons and one with 20 tons, are based in South Boston on the east side of Fort Point Channel, at the Farrell's Dock & Terminal Co. Wharf. Most of the other floating cranes and derricks based at the port are owned and operated by marine contractors. These cranes and/or derricks are used primarily in contract work and are moved to various locations in the port area as construction work requires.

The following table gives details of hoisting equipment ashore and afloat, and usually available for hire. Other cranes, derricks, and special-handling equipment, generally for the sole use of the operating companies, are described under Mechanical Handling Facilities in the table of Piers, Wharves, and Docks beginning on page 23.

HOISTING EQUIPMENT-ASHORE

OPERATOR	IDENTIFYING P.W.A.D.E.I. NUMBER	NUMBER AND TYPE	LENGTH OF BOOM (FEET)	LIFT CAPACITY (TONS)
Bethlehem Steel Corp., Boston Yard	4 - 8	One diesel mobile crane.	50	10
	6	Two diesel-electric, travelling, full-portal shipyard cranes.	-	15, each at 60-foot radius.
	7	Two diesel-electric, travelling, full-portal shipyard cranes.	-	25, each at 45- to 60-foot radius.
	8	One diesel-electric, travelling, full-portal shipyard crane.	-	15 at 45- to 90-foot radius.
Bromfield Corp.	20	Two diesel mobile cranes.	120, each with 10-foot jib extension.	One 35 and one 25.
General Ship & Engine Works, Inc.	21	One diesel crawler crane. One gasoline crawler crane. One diesel mobile crane.	80 60 60	35 15 5
	22	One electric, travelling, revolving, full-portal gantry crane.	100	16
Schiavone & Sons, Inc., Division of Michael Schiavone & Sons, Inc.	71	Three electric, travelling, revolving, full-portal gantry cranes. Two diesel-electric, locomotive cranes. Four diesel crawler cranes.	90, each. 70, each. 75, each.	20, each. 10, each. 10, each.
Higgin Terminals, Inc.	123	One diesel crawler crane.	70	50
Murray & Tregurtha, Inc.	135	One electric, stiff-leg derrick.	20, on bullwhee .	30
John J. Duane Co.	141	Five diesel and gasoline crawler cranes.	45 - 60	13 - 25
General Dynamics Corp. Quincy Division.	146	Two electric, travelling, revolving, high-tower, full-portal gantry cranes.	95, each with 20-foot jib extension.	40, each; combined 80.
	147	Two electric, travelling, revolving, high-tower, full-portal gantry cranes.	One, 150 and one, 105	One 50 and one 37 1/2; combined lifting capacity 75.
	148	One electric, travelling, revolving, high-tower, full-portal gantry crane. One electric, travelling, full-portal gantry crane. One fixed, revolving, hammerhead crane.	- - -	37 1/2 at 67-foot radius. 75 120 at 25- to 60-foot radius.
	149	Two electric, travelling, revolving, high-tower, full-portal gantry cranes.	-	15, each at 60-foot radius; combined lifting capacity 30.
	150 - 151	Two electric, travelling, overhead bridge cranes.	-	150, each; combined lifting capacity 300.
	150	Two electric, travelling, overhead bridge cranes.	-	15, each.
	151	Two electric, travelling, overhead bridge cranes.	-	15, each.

HOISTING EQUIPMENT-AFLOAT

OPERATOR AND ADDRESS	NAME	DIMENSIONS		HOISTING EQUIPMENT			REMARKS
		Length (feet)	Beam (feet)	TYPE	Lift (tons)	Capacity (tons)	
McKie Lighter Co. 50 Sleeper Street Boston, Mass.	[illegible]	130	40	Steel, revolving crane.	115	50	Steel hull; loaded draft 4.2 feet.
	Connecticut.	91.5	32	Steel, steel A-frame derrick.	91	20	Wood hull; loaded draft 4.5 feet; crane at [illegible] capacity 300 tons.

THE PORT OF BOSTON, MASS.

FLOATING EQUIPMENT

Floating equipment based at the port of Boston includes eighteen tugs and towboats, with ratings up to 1,270 horsepower, used for towing, docking, undocking, and shifting vessels; and four tank barges and four self-propelled tankers, with cargo-carrying capacities ranging up to 12,000 barrels, equipped with pumps and used for making deliveries of bunker fuel and fresh water to vessels at berth. The table on the following page describes this equipment in detail.

Information on the floating cranes and derricks based at the port is given under the section "Hoisting Facilities - Ashore and Afloat," page 88 of this report.

Additional information on floating equipment can be obtained from Transportation Series No. 5, "Transportation Lines on the Atlantic, Gulf, and Pacific Coasts," published annually by the Corps of Engineers, Department of the Army. This report describes vessels operated by various transportation lines and individual owners; gives registered tonnage, length, breadth, draft, horsepower, carrying capacity, and other details of construction; and describes the operations of each line, giving the waterways used and the localities served. Copies of this publication are sold by the District Engineer, U.S. Army Engineer District, New Orleans, P. O. Box 60267, New Orleans, La. 70160.

MARINE REPAIR PLANTS

Eight plants operate waterfront facilities at the port for the construction, repair, and conversion of oceangoing vessels, tugs and towboats, barges, and various types of small vessels. Details of these plants are given in the table of Marine Repair Plants on pages 92 through 94. Five of these plants operate haul-out or drydocking facilities which are described in the following section on "Drydocks and Marine Railways."

The port of Boston also has a number of plants without waterfront facilities which are engaged in marine repair work. These companies maintain shops and portable equipment for making above-waterline repairs and for installing equipment, gear, and machinery on all types of craft at berth.

In addition, several marine repair plants with waterfront facilities are operated solely for the repair and maintenance of company-owned floating equipment and for recreational craft; these plants have not been included in this report.

F TING EQUIPMENT
(Available to the Public)

(a) OPERATOR AND ADDRESS (b) BASE FROM WHICH OPERATED	NAME OR NUMBER AVAILABLE	DIMENSIONS OVERALL: LENGTH (FEET)	DIMENSIONS OVERALL: WIDTH (FEET)	DRAFT UNDER LOAD (FEET)	HOW OPERATED	HORSE-POWER	CAPACITY (BARRELS)	REMARKS
				TUGS AND TOWBOATS				
(a) Valdemar Poug 327 Marginal Street East Boston, Mass. 02128 (b) P.W.D. Bol. No. 3	Boris Paul Tenacious	45.0 46.0 38.0	11.0 11.0 11.0	4.0 6.0 7.0	Diesel. Diesel. Diesel.	225 225 180	- - -	Towing in Boston Harbor and vicinity.
(a) Boston Tow Boat Co. 420 Atlantic Avenue Boston, Mass. 02210 (b) P.W.D. Bol. No. 23 - 25	Mars Juno Orion Triton Hercules Athena Jupiter Luna Venus	103.0 101.0 100.0 101.0 101.0 93.4 86.5 87.3 99.3	25.9 25.9 25.9 25.9 25.9 22.8 23.8 21.5 26.5	12.0 12.6 12.6 12.6 12.3 10.9 9.6 15.0 13.9	Diesel-electric. Diesel. Diesel. Diesel. Diesel. Diesel. Diesel. Diesel-electric. Diesel-electric.	1,900 1,270 1,270 1,270 1,050 800 650 760 760	- - - - - - - - -	Towing, docking, undocking, and shifting vessels in Boston Harbor and vicinity, including other points on New England Coast and Cape Cod Canal.
(a) Ross Towboat Co., Inc. 18 Northern Avenue Boston, Mass. 02210 (b) P.W.D. Bol. No. 102	Sadie Ross Glen Thomas Mary Ro Providence	95.5 70.0 85.0 86.0	20.2 17.5 22.0 22.5	9.5 10.0 10.5 11.6	Diesel. Diesel. Diesel. Diesel.	320 575 620 805	- - - -	Towing, docking, undocking, and shifting vessels in Boston Harbor and vicinity, including other points on New England Coast and Cape Cod Canal.
(a) Commercial Towing Co., Inc., Pier 19 Chelsea Street Boston, Mass. (b) P.W.D. Bol. No. 73	Shawsheen Penny	76.0 48.0	21.0 15.0	9.5 6.0	Diesel. Diesel.	500 250	- -	Towing in Boston Harbor and vicinity.
				TANK BARGES				
(a) Boston Fuel Transportation, Inc. 46 Sea Street East Boston, Mass. (b) P.W.D. Bol. Nos. 14 - 15	BFT 200 R.T.C. No. 55 John	178.0 135.0 104.8	38.0 31.0 22.0	12.0 9.0 8.0	Towed. Towed. Towed.	- - -	12,000 6,000 2,200	Carrying bunker fuel to vessels at berth in Boston Harbor.
(a) Esso Oil & Refining Co. 402 Broadway Everett, Mass. P.W.D. Bol. No. 53	Esso Barge No. 18	178.0	38.0	12.5	Towed.	-	12,000	Carrying bunker fuel to vessels at berth in Boston Harbor.
				TANKERS				
(a) Neptune Oil Corp. 62 Long Wharf Boston, Mass. (b) P.W.D. Bol. No. 93	Neptune II Neptune	40.0 52.8	11.0 16.0	4.0 7.5	Diesel. Diesel.	60 120	65 310	Carrying diesel fuel to fishing vessels. Equipped with pumps.
(a) Texaco Oil Corp. Pier 7, Administration Building, South Boston Pier No. 6 Boston, Mass. (b) P.W.D. Bol. No. 109	Sea Doo	67.3	15.2	7.0	Diesel.	135	488	Carrying diesel fuel to fishing vessels. Equipped with pumps.
				FRESH WATER BOAT				
(a) Frances B. Carson 30 Walker Avenue Medford, Mass. (b) P.W.D. Bol. No. 93	Yvonne	38.6	12.9	6.6	Diesel.	65	20-ton	Carrying fresh water to vessels at berth in Boston Harbor. Equipped with pumps.

MARINE REPAIR PLANTS

REF. NO. OF NEAREST PIER OR WHARF	3 - MAP NO. 2
OPERATOR AND ADDRESS	Valdemar Pang, 327 Marginal Street, East Boston, Mass. 02128
LOCATION OF PLANT	East Boston, Jeffries Point, Main Ship Channel, east of foot of Jeffries Street.
REPAIR SHOPS AND EQUIPMENT	Welding units; portable tools, jigs, and air compressor; one 10-ton, gasoline crawler crane with 45-foot boom; and one 100-ton marine railway.
NATURE OF WORK UNDERTAKEN	Repairs to various types of small vessels.
LARGEST SHAFTS PRODUCED	None.
LARGEST CASTINGS PRODUCED	None.
VESSEL CAPACITY AT PLANT	One on railway, others at pier.
REMARKS	-

REF. NO. OF NEAREST PIER OR WHARF	4 - 8 - MAP NO. 2
OPERATOR AND ADDRESS	Bethlehem Steel Corp., Boston Yard, 256 Marginal Street, East Boston, Mass. 02128
LOCATION OF PLANT	East Boston, Main Ship Channel, between foot of Jeffries and Larson Streets.
REPAIR SHOPS AND EQUIPMENT	Shops: machine, electric, plate, paint, pipe, copper, blacksmith, carpenter, joiner, sheet metal, steel fabrication, rigger, and boiler; mold loft; welding units; oil reclaiming plant; power plant; one 250-foot graving dock, one 10,000- and one 16,000-ton floating drydock; and tank cleaning and air compressor barges.
NATURE OF WORK UNDERTAKEN	Complete repairs and conversions to all types of deep draft and oceangoing vessels, including above- and below-waterline repairs to hulls, deck machinery, steam turbine, and diesel repairs; and clearing cargo and fuel tanks and tankers.
LARGEST SHAFTS PRODUCED	Lath: 42-inch swing by 50-foot bed.
LARGEST CASTINGS PRODUCED	By subcontract.
VESSEL CAPACITY AT PLANT	Three in drydocks, others at piers.
REMARKS	Repair work done at plant and on board vessels at any location in harbor. Shipyard cranes on piers have lift capacities up to 25 tons.

REF. NO. OF NEAREST PIER OR WHARF	13 - MAP NO. 2
OPERATOR AND ADDRESS	Sumner Engineering & Machine Corp., 33 Sumner Street, East Boston, Mass. 02128
LOCATION OF PLANT	East Boston, Main Ship Channel, Sumner Street, east of foot of Bay Street extended.
REPAIR SHOPS AND EQUIPMENT	Machine shop; welding units; portable hand tools; 16-foot diameter bevel mill.
NATURE OF WORK UNDERTAKEN	Above-waterline repairs to boilers; repairs to engines, boilers, dynamos, and plumbing.
LARGEST SHAFTS PRODUCED	12 inches by 20.5 feet.
LARGEST CASTINGS PRODUCED	None.
VESSEL CAPACITY AT PLANT	One at pier.
REMARKS	-

MARINE REPAIR PLANTS

REF. NO. OF NEAREST PIER OR WHARF	16 - 20 - MAP NO. 2
OPERATOR AND ADDRESS	Bromfield Corp., 246 Border Street, East Boston, Mass. 02128.
LOCATION OF PLANT	East Boston, Main Ship Channel, below foot of Lexington Street extended.
REPAIR SHOPS AND EQUIPMENT	Shops: machine, carpenter, electric, welding, and assembly; one 3,0-ton marine railway; and one 35- and one 25-ton, diesel mobile crane with 120-foot boom and 40-foot jib extension.
NATURE OF WORK UNDERTAKEN	Construction of small steel vessels; above-waterline repairs of any nature to wood and steel hulls; and below-waterline repairs to vessels up to capacity of marine railway.
LARGEST SHAFTS PRODUCED	24 inches by 24 feet.
LARGEST CASTINGS PRODUCED	None.
VESSEL CAPACITY AT PLANT	One on marine railway, others at piers.
REMARKS	-
REF. NO. OF NEAREST PIER OR WHARF	21 and 22 - MAP NO. 2
OPERATOR AND ADDRESS	General Ship & Engine Works, Inc., 336 Border Street, East Boston, Mass. 02128.
LOCATION OF PLANT	East Boston, Main Ship Channel, foot of Eutaw Street extended.
REPAIR SHOPS AND EQUIPMENT	Shops: machine, boiler, pattern, electric, carpenter, pipe, paint, and steel fabrication; welding units; mold and rigging loft; shipbuilding and launching ways; one 35- and one 15-ton crawler crane; one 5- and one 2-ton mobile crane; and one 10-ton gantry crane.
NATURE OF WORK UNDERTAKEN	Construction of small vessels; above-waterline repairs to wood and steel hulls; repairs to engines, boilers, dynamos, and electronic equipment; cleaning, scaling, and painting.
LARGEST SHAFTS PRODUCED	35 inches by 60 feet.
LARGEST CASTINGS PRODUCED	None.
VESSEL CAPACITY AT PLANT	1,234 feet of berthing space at piers.
REMARKS	Repair work done at plant and on board vessels at any location in Harbor. Plant specializes in diesel engine repairs.
REF. NO. OF NEAREST PIER OR WHARF	46 - 50 - MAP NO. 2
OPERATOR AND ADDRESS	Munro Drydock, Inc., 1 Winnisimmet Street, Chelsea, Mass. 02150.
LOCATION OF PLANT	Chelsea, right bank of Chelsea River, below Andrew P. McArdle Bridge.
REPAIR SHOPS AND EQUIPMENT	Shops: machine, carpenter, electric, paint, and rigging; welding units; and one 3,000- and one 1,000-ton marine railway.
NATURE OF WORK UNDERTAKEN	Above-waterline repairs of any nature; below-waterline repairs to vessels up to capacity of marine railways.
LARGEST SHAFTS PRODUCED	8 inches by 20 feet.
LARGEST CASTINGS PRODUCED	None.
VESSEL CAPACITY AT PLANT	One on each marine railway, others at piers.
REMARKS	Repair work done at plant and on board vessels at any location in harbor.

MARINE REPAIR PLANTS

REF. NO. OF NEAREST PIER OR WHARF	89 - MAP NO. 3
OPERATOR AND ADDRESS	Harbor Marine Service, 72 Commercial Wharf North, Boston, Mass. 02[illegible].
LOCATION OF PLANT	Boston City Front, Main Ship Channel, north of foot of Richmond Street extended.
REPAIR SHOPS AND EQUIPMENT	Engine shop.
NATURE OF WORK UNDERTAKEN	Installation and repairs to marine diesel and gasoline engines in small commercial vessels, fishing boats, and pleasure craft.
LARGEST SHAFTS PRODUCED	None.
LARGEST CASTINGS PRODUCED	None.
VESSEL CAPACITY AT PLANT	52 feet of berthing space alongside barge.
REMARKS	Engine repair shop located on 52- by 26-foot covered barge.

REF. NO. OF NEAREST PIER OR WHARF	146 - 151 - MAP NO. 5
OPERATOR AND ADDRESS	General Dynamics Corp., Quincy Division, 97 East Howard Street, Quincy, Mass. 02169.
LOCATION OF PLANT	Quincy and Braintree, left bank of Weymouth Fore River, above Washington Street Bridge.
REPAIR SHOPS AND EQUIPMENT	Shops: pipe and copper, joiner, sheet metal, machine, fabrication, boilers, paint, blacksmith, galvanizing, and electrical; mold and pattern lofts; X-ray facilities; metal spraying and sandblasting equipment; 3 shipbuilding and launching ways; one 8,000- and one 2,000-ton floating drydock; 5 graving docks.
NATURE OF WORK UNDERTAKEN	Construction, conversion, outfitting, and repairs of any nature to all types of deep draft and coastwise vessels, and marine craft. Facilities at plant supplemented by those owned by company at other ports.
LARGEST SHAFTS PRODUCED	Lathe: 100-foot [illegible].
LARGEST CASTINGS PRODUCED	By subcontract.
VESSEL CAPACITY AT PLANT	One in each river and floating drydock, others at piers and wet basin.
REMARKS	Repair work done at plant and on board vessels at any location [illegible]. Specialize [illegible] object [illegible].

PORT AND HARBOR FACILITIES

DRYDOCKS AND MARINE RAILWAYS

Four floating drydocks, four graving docks, and four marine railways are located at five of the waterfront marine repair plants. Lifting capacities of the floating drydocks range from 2,000 to 18,000 tons; the lengths of the graving docks range from 250 to 938 feet; and the haul-out capacities of the marine railways range from 100 to 3,000 tons.

Detailed descriptions of these facilities are given in the tables on pages 92 through 93.

FLOATING DRYDOCKS

FORMERLY AT N.S.D. Ftr., NO.	6 - YFD No. 2	7 - YFD No. 2
OWNED BY	Bethlehem Steel Corp., Boston Yard	
OPERATED BY	do.	
ADDRESS	256 Marginal Street, East Boston, Mass. 02128	
LOCATION OF WATERFRONT	East Boston, Main Ship Channel, between foot of Jeffries and Lamson Streets.	
TYPE OF CONSTRUCTION	Continuous steel sidewalls on 10 timber piers.	Steel, 3 sections.
DIMENSIONS (FEET): Length overall Length on blocks Width overall Maximum clear width for vessel Minimum depth over blocks, dock numbered.	Drydock No. 6 Dock, with two 30-foot aprons. 415 110 93 20, MLW	Drydock No. 7 Dock, with two 35-foot aprons. 545.5 124 93 ft., 2 in. 20, MLW
LIFTING CAPACITY (TONS)	10,000	15,000
MEAN RISE AND FALL OF TIDE (FEET)	9.6	9.6
CRANE SERVICE	Two diesel-elec tric, traveling, full-portal steel gantry cranes on pier, each with capacity of 15 tons at 60-foot radius and 5 tons at 90-foot radius.	On each sidewall: one electric, traveling, revolving gantry crane, capacity 20 tons at 35-foot radius and 7 1/2 tons at 60.5-foot radius. On pier: two diesel-electric, traveling, full-portal gantry cranes, each with capacity of 15 tons at 60- to 90-foot radius and 25 tons at 45- to 60-foot radius.
UTILITIES AVAILABLE	Fresh and salt water, compressed air: A.C., 440 volts, 3-phase, 60-cycle; and D. C., 115-230 volts.	
LARGEST VESSEL DOCKED (FEET)	418	532
DATE BUILT AND OR REBUILT	1920-1921	1942-1943
REMARKS	Drydock moored along east side of Boston Yard, Pier No. 3 (Ref. No. 6). Drydock designed for 57.5-foot tidal depth.	Drydock moored along east side of Boston Yard, Pier No. 2 (Ref. No. 7). Drydock designed for 47.5-foot tidal depth.

FORMERLY AT N.S.D. Ftr. NO.	146 - YFD No. 5	181 - YFD NO. 5
OWNED BY	General Dynamics Corp., Quincy Division.	
OPERATED BY	do.	
ADDRESS	97 First Island Street, Quincy, Mass. 02169	
LOCATION ON WATERFRONT	Quincy, East bank of New York Ferry River, East side of Dry Dock No. 3, approximately 2000 feet above Massachusetts Avenue Bridge.	Quincy, left bank of New York Ferry River, approximately 0.4 mile above Massachusetts Avenue Bridge.
TYPE OF CONSTRUCTION	Timber, one section.	Timber, 4 sections.
DIMENSIONS (FEET): Length overall Length on blocks Width overall Maximum clear width for vessel Minimum depth over blocks, dock numbered.	Dock # No. 5 [illegible] 5 in., with 25 & 2-foot aprons. 7[illegible] ft., 1[illegible] in. 117 [illegible] ft., 7 in. [illegible] ft., 4 in., MLW	Sections # Nos. 1, 2, 3, and 4 [illegible] 11 in., with 25 & 2-foot aprons. 3[illegible] ft., 5 in. 117 65 ft., 7 in. 20 ft., 4 in., MLW
LIFTING CAPACITY (TONS)	2[illegible]	[illegible]
MEAN RISE AND FALL OF TIDE (FEET)	8	8
CRANE SERVICE	Two electric, traveling, [illegible] volt, full-portal steel [illegible] cranes on pier, each with capacity of [illegible] tons at [illegible]-foot radius.	2 electric and two 15-ton, electric traveling, full-portal steel [illegible] cranes on pier, each with capacity of 15 tons at [illegible]-foot radius and lifting capacity of 300 tons.
UTILITIES AVAILABLE	Fresh water, [illegible] compressed air, steam, electricity, oxygen, and acetylene.	
LARGEST VESSEL DOCKED (FEET)	-	-
DATE BUILT AND OR REBUILT	-	-
REMARKS	[illegible]	[illegible]

GRAVING DOCKS

REF. NO. OF NEAREST PIER.....	4 and 5 - MAP NO. 2
OWNED AND OPERATED BY.....	Bethlehem Steel Corp., Boston Yard.
ADDRESS.....	256 Marginal Street, East Boston, Mass. 02128
LOCATION ON WATERFRONT.....	East Boston, Main Ship Channel, west of foot of Jeffries Street, between the inner ends of Boston Yard, Piers Nos. 4 and 5.
DIMENSIONS (FEET): Width at entrance..... Width at coping..... Length, coping head to side of caisson..... Depth over keel blocks at MLW..	Graving Dock No. 4 45.8 67.5, for a length of 140 feet. 256 16.5
MEAN RISE AND FALL OF TIDE (FEET)	9.6
CRANE SERVICE.....	One fixed revolving crane with capacity of 5 tons at 14-foot radius and 2 tons at 50-foot radius; and one 10-ton, diesel mobile crane with 50-foot boom.
UTILITIES AVAILABLE.....	Fresh and salt water, compressed air; A.C., 440 volts, 3-phase, 60-cycle, and D.C., 110/220 volts.
REMARKS.....	Graving dock has handled vessels up to 239 feet in length.

REF. NO. OF NEAREST PIER.....	149 - MAP NO. 5
OWNED AND OPERATED BY.....	General Dynamics Corp., Quincy Division.
ADDRESS.....	97 East Howard Street, Quincy, Mass. 02169
LOCATION ON WATERFRONT.....	Left bank of Weymouth Fore River, approximately 0.32 mile above Washington Street Bridge.
TYPE OF CONSTRUCTION.....	One large basin. Walls: steel sheet pile cells with solid fill; floor: concrete. Basin is divided into 3 graving docks, separated by Crane Runways Nos. 2 and 3. One steel gate at each basin entrance is hinged at bottom and raised into a vertical closing position by cranes on crane runways.

DIMENSIONS (FEET):	Basin No. 6	Basin No. 7	Basin No. 8
Length, inside.....	865 ft., 6 in.	935 ft., 6 in.	867 ft., 7 in.
Width, inside.....	125	140	125
Width at entrance.....	129	147	129
Depth over 4-foot keel blocks at MLW.....	22	22	22
Depth over floor at MLW.....	13	18	18

MEAN RISE AND FALL OF TIDE (FEET)	8
CRANE SERVICE.....	Four 75- and four 50-ton, electric, traveling, revolving, full-portal gantry cranes, each equipped with a whip hoist with 15-ton capacity at 14-foot radius, serve the 3 graving docks. One of each of the above 75- and 50-ton cranes are located on the following crane runways: Runway No. 1 - north side Basin No. 6; Runway No. 2 - between Basins Nos. 6 and 7; Runway No. 3 - between Basins Nos. 7 and 8; Runway No. 4 - south side Basin No. 8.
UTILITIES AVAILABLE.....	Service lines for steam, electricity, oxygen, acetylene gas, and compressed air.
REMARKS.....	Basins are separated only by crane runways and are all flooded or dewatered at same time.

MARINE RAILWAYS

REF. NO. OF NEAREST PIER OR WHARF	3 - MAP NO. 2	19 - MAP NO. 2	46 and 50 - MAP NO. 2	
OWNED AND OPERATED BY	Valdemar Bang.	Bronfield Corp.	Munro Drydock, Inc.	
ADDRESS	327 Marginal Street, East Boston, Mass. 02128.	246 Border Street, East Boston, Mass. 02128.	1 Winnisimmet Street, Chelsea, Mass. 02128.	
LOCATION ON WATERFRONT	East Boston, Jeffries Point, Main Ship Channel, east of foot of Jeffries Street.	East Boston, Main Ship Channel, below foot of Lexington Street extended.	Chelsea, right bank of Chelsea River, below Andrew P. Melvdle Bridge.	
TYPE	Crandall.	Crandall.	Crandall.	Crandall.
DIMENSIONS (FEET):			No. 12	No. 13
Length of cradle.....	48	175	230	150
Length on blocks.....	48	150	230	130
Clear width of cradle at top of keel blocks.....	25	40	35	28
Depth over keel blocks at "X" Forward.....	2	13	6	6
Aft.....	7	15	9	8
HAULING POWER (TONS)	100, approximately.	700	3,000	1,000
"X" RISE AND FALL OF TIDE (FEET)	9.5	9.5	9.5	9.5
CRANE SERVICE	One 10-ton, gasoline crawler crane with 45-foot boom.	One 35- and one 25-ton, diesel mobile crane, each with 120-foot boom and 40-foot jib extension.	None.	None.
UTILITIES AVAILABLE	Water, compressed air, and electricity.	Water, steam, compressed air, and electricity.	Water, steam, compressed air, and electricity.	
LARGEST VESSEL HANDLED (FEET)	50- by 25-foot barge.	-	350	180
YEAR BUILT AND/OR REBUILT	-	1946	-	1937
REMARKS	Railway located adjacent to inner end of west side of pier.	Railway located adjacent to inner end of upper side of pier.	3,000-ton railway located adjacent to bulkhead at inner end of north side of Pier 1 (Ref.No. 46); and 1,000-ton railway is located along face of Pier 5 (Ref.No. 50)	

INDEX OF PIERS, WHARVES, AND DOCKS

OPERATOR AND/OR NAME OF FACILITY	LOCATION	PAGE NO.	MAP NO.	MAP REF. NO.
American Sugar Co., Raw Sugar Wharf	Charlestown	47	3	66
Anthony's Pier 4, Inc.				
South Boston Pier No. 4	South Boston	61	4	106
Atlantic Cement Co., Inc., Pier	Charlestown	48	3	69
*Atlantic-Richfield Co., Pier	East Boston	36	2	33
Atlas Terminal Stores, Inc.				
Tin Shed Wharf	South Boston	59	4	99
Atwood, H. O. Co., Inc.				
*Lewis Wharf, North Pier	Boston City Front	54	3	87
Bang, Valdemar				
General Boat Service Pier	East Boston	26	2	3
Bethlehem Steel Corp.				
Boston Yard				
Pier No. 1	East Boston	28	2	8
Pier No. 2	East Boston	28	2	7
Pier No. 3	East Boston	27	2	6
Pier No. 4	East Boston	27	2	5
Pier No. 5	East Boston	27	2	4
Boston Boat & Engine Co., Pier	Quincy	71	5	136
Boston, City of				
Boston Harbor Police Wharf	Boston City Front	52	3	80
City Fireboat Wharf	Boston City Front	54	3	85
**Dorchester Dumping Station Wharf	Dorchester	69	5	131
Boston Edison Co.				
**Edgar Station Wharf	Weymouth	77	5	153
Fore River Coal and Oil Wharf	Weymouth	77	5	154
Mystic Station No. 200 Wharf	Everett	44	3	57
**South Boston L Street Coal Dock	South Boston	66	4	120
**South Boston Oil Barge Wharf	South Boston	65	4	119
Boston Fish Market Corp.				
Commonwealth South Boston Pier No. 6	South Boston	62	4	109
South Boston Fish Piers	South Boston	62	4	110
Boston Fuel Transportation, Inc.				
North Pier	East Boston	30	2	15
South Pier	East Boston	30	2	14
Boston Marine Disposal Corp.				
Massachusetts Port Authority, Mystic Piers Nos. 48, 49, and 50	Charlestown	50	3	73
Boston Tow Boat Co.				
North Pier	East Boston	34	2	25
South Pier	East Boston	33	2	23
Wharf	East Boston	33	2	24
Bromfield Corp.				
Center Pier	East Boston	31	2	17
Lower Pier	East Boston	31	2	16
Marine Railway Pier	East Boston	32	2	19
North Pier	East Boston	32	2	20
Upper Pier	East Boston	31	2	18
Cambridge Electric Light Co.				
Wharf	Cambridge	51	3	77
Cambridge Gas Co., Wharf	Cambridge	51	3	78
Chevron Oil Co.				
Wharf	Somerville	45	3	63
Wharf	Cambridge	51	3	76
Cities Service Oil Co.				
East Braintree Tanker Dock	Braintree	76	5	152
Wharf	Chelsea	38	2	39
Commercial Wharf Property Co.				
*North Pier	Boston City Front	55	3	89
*South Pier	Boston City Front	55	3	90

*Used by more than one operator.
**Not used.

INDEX OF PIERS, WHARVES, AND DOCKS

OPERATOR AND/OR NAME OF FACILITY	LOCATION	PAGE NO.	MAP NO.	MAP REF. NO.
Community Produce Co.				
*Lewis Wharf, South Pier	Boston City Front	55	3	88
Corea, Russell J.				
Arcoc Loading Station	Medford	46	3	62
Duane, John J. Co.				
Lumber Yard Wharf	Quincy	72	5	138
Steel Yard Wharf	Quincy	73	5	141
Eastern Minerals, Inc.				
Pier	Chelsea	40	2	44
Wharf	Chelsea	40	2	45
Ellis, W. H. & Son, Pier Building Co.				
Ellis Wharf	East Boston	34	2	26
Faro, Angelo J.; James R.; Joseph P.; Richard J.; and Salvatore P.				
Battery Wharf	Boston City Front	53	3	84
Farrell's Dock & Terminal Co., Wharf	South Boston	59	4	100
Fishermen's Marina				
*Eastern Packet Pier and Wharf	Boston City Front	56	3	91
General Dynamics Corp., Quincy Division				
Quincy Yard				
Pier No. 1	Quincy	75	5	147
Pier No. 2	Quincy	75	5	148
Pier No. 3	Quincy	75	5	149
Pier No. 4	Quincy	74	5	146
Wet Basin No. 2, North Side	Braintree	76	5	150
Wet Basin No. 2, South Side	Braintree	76	5	151
General Ship & Engine Works, Inc.				
Pier 1 South	East Boston	32	2	21
Pier 2	East Boston	33	2	22
Gibbs Oil Co.				
*Atlantic-Richfield Co., Pier	East Boston	36	2	33
Gulf Oil Corp.				
Barge Wharf	Chelsea	38	2	37
Dorchester Bulk Plant Wharf	Dorchester	69	5	130
Tanker Wharf	Chelsea	37	2	36
Harbor Marine Service				
*Commercial Wharf, North Pier	Boston City Front	55	3	89
*Commercial Wharf, South Pier	Boston City Front	55	3	90
Harbor View Marina, Inc., Wharf	Quincy	73	5	143
Hersey, A. A., Inc., Pier	Chelsea	39	2	41
Hines & Smart Corp.				
Otis Wharf	Boston City Front	58	3	97
Humble Oil & Refining Co.				
Everett Terminal Wharf	Everett	43	3	53
*India Wharf	Boston City Front	57	3	95
Kelley, O. G. & Co., Wharf	Dorchester	70	5	132
Kelly, A.				
*Eastern Packet Pier and Wharf	Boston City Front	56	3	91
LaMont Associates, Inc., Wharf	Eastern Neck	77	1	155
**Lincoln Oil Co., Wharf	Quincy	73	5	142
*Long Wharf	Boston City Front	56	3	93
Mahoney, James D., Pier	South Boston	65	4	118
Marquette Cement Manufacturing Co., Wharf	Everett	43	3	52
Massachusetts Bay Lines, Inc.				
Rowes Wharf	Boston City Front	57	3	96
Massachusetts Bay Transportation Authority				
**Lincoln Wharf	Boston City Front	54	3	86
**Reserved Channel Wharf	South Boston	66	4	121
Wharf	Somerville	47	3	65
Massachusetts, Commonwealth of Metropolitan District Commission,				
**Sewer Division, Wharf	East Boston	30	2	32

*Used by more than one operator.
**Not used.

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OPERATOR AND/OR NAME OF FACILITY	LOCATION	PAGE NO.	MAP NO.	MAP REF. NO.
Massachusetts Institute of Technology				
*Lewis Wharf, South Pier	Boston City Front	55	3	88
Massachusetts Port Authority, Commonwealth South Boston Pier No. 5	South Boston	62	4	108
Hoosac Pier No. 1	Charlestown	50	3	75
Mystic Pier No. 1	Charlestown	50	3	74
Metropolitan Petroleum Company of Mass., Division of The Pittston Co.				
Wharf	Chelsea	42	2	51
**Wharf	Dorchester	70	5	134
Mobil Oil Corp.				
Quincy Terminal Wharf	Quincy	74	5	144
Wharf	East Boston	36	2	31
Monsanto Chemical Co.				
Acid Wharf	Everett	45	3	58
Wharf	Everett	45	3	59
Morton Oil Co., Wharf	Malden	45	3	60
Munro Drydock, Inc.				
Pier 1	Chelsea	41	2	46
Pier 2	Chelsea	41	2	47
Pier 3	Chelsea	41	2	48
Pier 4	Chelsea	42	2	49
Pier 5	Chelsea	42	2	50
Murray & Tregurtha, Inc., Division of Mathewson Machine Works, Inc.				
Pier	Quincy	71	5	135
Mystic Steamship Corp., Subsidiary of Eastern Gas and Fuel Associates				
Prolerized New England Co., East Sulphur Wharf	Everett	43	3	54
New England Aquarium Corp.				
Central Wharf	Boston City Front	57	3	94
New York Central Railroad Co.				
East Boston Pier 1	East Boston	29	2	12
East Boston Pier 3	East Boston	29	2	11
East Boston Pier 4	East Boston	29	2	10
East Boston Pier 5	East Boston	28	2	9
New York, New Haven and Hartford Railroad Co., The Trustees of				
Fan Yard Wharf	South Boston	60	4	103
New York, New Haven and Hartford Railroad Co.				
**River Wharf	South Boston	59	4	101
North Atlantic Dredging Co.				
Perini Corp., Marine Division				
*Center Pier	East Boston	35	2	28
*East Pier	East Boston	35	2	29
*West Pier	East Boston	34	2	27
Northeast Petroleum Corp.				
American Oil Co., Wharf	Chelsea	38	2	38
*Sunoco Pier	Revere	37	2	34
Paul's Lobster Co., Wharf	South Boston	61	4	107
Pennsylvania Oil Co., Wharf	Somerville	47	3	64
Perini Corp., Marine Division				
*Center Pier	East Boston	35	2	28
*East Pier	East Boston	35	2	29
*West Pier	East Boston	34	2	27
Port Terminals, Inc.				
Boston Army Base Terminal				
Berths Nos. 1, 2, and 3 (North Pier)	South Boston	63	4	112
Berths Nos. 4 and 5 (South Pier)	South Boston	63	4	113
Berth No. 6	South Boston	64	4	114
Berth Nos. 7, 8, and 9	South Boston	64	4	115
Berth No. 10 (East portion)	South Boston	64	4	116
Berth No. 10 (West portion)	South Boston	65	4	117

*Used by more than one operator.
**Not open.

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OPERATOR AND/OR NAME OF FACILITY	LOCATION	PAGE NO.	MAP NO.	MAP REF. NO.
Procter & Gamble Manufacturing Co.				
Quincy Factory Wharf	Quincy	74	5	145
Prolerized New England Co.				
Scrap Metal Wharf	Everett	44	3	55
Quincy Adams Marine Basin, Inc., Pier	Quincy	71	5	137
Quincy Lumber Co., Wharf	Quincy	72	5	139
Quincy Oil Co.				
Plant No. 4, Deepwater Oil Terminal Wharf	Quincy	72	5	140
Wharf	Chelsea	40	2	43
Revere Sugar Refinery				
Oil Pier	Charlestown	48	3	68
Wharf	Charlestown	48	3	67
Rev-Lyn Contracting Co., Wharf	East Boston	26	1	2
*Rice Wharf	Winthrop Head	26	1	1
Ross Towboat Co., Inc., Pier	South Boston	60	4	102
Schiavone & Sons, Inc., Division of Michael Schiavone & Sons, Inc.				
Mystic Wharf	Charlestown	49	3	71
Seaboard Construction Co., Pier	Chelsea	39	2	40
Sea-Land Service, Inc.				
Castle Island Terminal, Berth No. 17	South Boston	69	4	129
Shea, James D., Wharf	Dorchester	70	5	133
**South Boston Pier No. 1	South Boston	60	4	104
**South Boston Pier No. 2	South Boston	61	4	105
South Shore Lobster Co.				
Hingham Industrial Center Pier	Hingham	78	1	156
State Fuel Co., Wharf	East Boston	35	2	30
Sumner Engineering & Machine Corp. Pier	East Boston	30	2	13
Sun Oil Co.				
*Sunoco Pier	Revere	37	2	34
*T-Wharf	Boston City Front	56	3	92
Texaco, Inc., Pier	Chelsea	39	2	42
U. S. Government				
Boston Army Base Terminal, Oil Wharf	South Boston	63	4	111
Boston Army Base Terminal, west portion of Berth No. 10	South Boston	65	4	117
Coast Guard				
U. S. Coast Guard, Pier No. 1	Boston City Front	52	3	81
U. S. Coast Guard, Pier No. 2	Boston City Front	53	3	82
U. S. Coast Guard, Pier No. 3	Boston City Front	53	3	83
General Services Administration				
U. S. Appraisers Stores Wharf	Boston City Front	53	3	98
Wharf	Boston City Front	52	3	79
U. S. Gypsum Co., Wharf	Charlestown	49	3	72
Union Carbide Corp.				
West Chemical Wharf	Everett	44	3	56
Union Oil Co. of Boston, Pier	Revere	37	2	35
**Wellington Realty Corp., Wharf	Medford	46	3	61
White Fuel Corp., subsidiary of Texaco, Inc.				
South Boston Barge Wharf	South Boston	66	4	122
South Boston Tanker Wharf	South Boston	67	4	123
South Boston Wharf	South Boston	67	4	124
Wiggin Terminals, Inc.				
Castle Island Terminal				
Berth No. 11	South Boston	67	4	125
Berths Nos. 12 and 13	South Boston	68	4	126
Berths Nos. 14 and 15	South Boston	68	4	127
Berth No. 16	South Boston	68	4	128
Mystic River Wharf No. 51	Charlestown	49	3	70

*Used by more than one operator.
**Not used.

INDEX OF STORAGE WAREHOUSES AT BOSTON, MASS.

OPERATOR AND/OR NAME OF FACILITY	LOCATION	PAGE NO.	MAP NO.	S.W. REF.NO.
Alden Storage Co.	South Boston	86	4	19
Atlas Terminal Stores, Inc.	South Boston	85	4	17
Boston Wharf Co.	South Boston	85	4	14
Bowker Storage & Distributing Co., Inc.	South Boston	85	4	16
Bowker Storage & Distributing Co., Inc.	South Boston	86	4	21
Bowker Storage & Distributing Co., Inc.	South Boston	86	4	23
Commodity Warehouse Corp.	South Boston	86	4	20
Cumberland Cold Storage Corp. of Boston	Roxbury	84	4	9
Eastern Storage Warehouse, Inc.	South Boston	87	4	25
Federal Warehouse, Inc.	South Boston	84	4	10
Kelso Warehouses, Inc.	Boston City Front	83	3	4
McGrath Storage & Warehouse Co., Inc.	Somerville	83	3	1
Metropolitan Moving & Storage, Inc.	Cambridge	84	3	7
New Boston Freezer Co., Inc.	Roxbury	84	4	8
Pier Cold Storage Co.	South Boston	87	4	26
Port Terminals, Inc.	South Boston	86	4	24
Port Terminals, Inc.	South Boston	87	4	27
Port Terminals, Inc.	South Boston	87	4	28
Quincy Market Cold Storage & Warehouse Co.	Watertown	83	3	3
Quincy Market Cold Storage & Warehouse Co.	Boston City Front	83	3	5
Quincy Market Cold Storage & Warehouse Co.	Boston City Front	83	3	6
Service Warehouse Co.	South Boston	84	4	11
Service Warehouse Co.	South Boston	85	4	18
Warehouse 16, Inc.	South Boston	84	4	12
Warehouse 13, Inc.	South Boston	85	4	13
Warehouse 13, Inc.	South Boston	85	4	15
Warehouse 13, Inc.	South Boston	86	4	22
Wiggin Terminals, Inc.	Charlestown	83	3	2
Wiggin Terminals, Inc.	South Boston	87	4	29

* U.S. GOVERNMENT PRINTING OFFICE: 1974 O - 546-572

*I. L. A. Strike December 23, 1962 - Jan. 26, 1963
*I. L. A. Strike January 11, 1965 - Feb. 13, 1965
*I. L. A. Strike Sept. 9-19, 1968 and Sept. 30, 1968

*I. L. A. Strike Dec. 20, 1968 - April 2, 1969
*I. L. A. Strike Oct. 1, 1971 thru Nov. 27, 1971
+Colliers no longer call at Boston

MASSACHUSETTS PORT AUTHORITY

Vessel Arrivals by Month

1959 - 1972

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1959	236	203	224	197	208	182	194	185	202	189	209	237	2,466
1960	223	211	215	222	176	176	170	177	179	186	187	225	2,347
1961	218	199	217	175	186	165	183	179	193	183	194	213	2,305
1962	219	199	227	193	172	177	164	179	174	178	188	186*	2,256
1963	160*	209	218	187	169	169	162	172	175	190	172	172	2,155
1964	206	193	188	174	151	154	169	158	153	161	180	184	2,071
1965	135*	177*	185	182	173	142	138	153	165	182	172	183	1,986
1966	178	176	168	170	163+	146	157	145	155	177	159	178	1,972
1967	172	157	196	173	157	170	147	152	142	126	160	134	1,886
1968	164	142	169	150	128	143	139	153	110*	117	154	130*	1,699
1969	110*	86*	93*	140*	123	105	118	140	130	130	159	139	1,473
1970	158	144	163	160	151	135	137	135	144	149	156	143	1,775
1971	162	132	147	137	146	132	120	140	133	74*	77*	125	1,525
1972	118	114	124	124	145	113	117	136	129	149	134	146	1,549

*I. L. A. Strike December 23, 1962 - Jan. 26, 1963
*I. L. A. Strike January 11, 1965 - Feb. 13, 1965
*I. L. A. Strike Sept. 9-19, 1968 and Sept. 30, 1968
*I. L. A. Strike Dec. 20, 1968 - April 2, 1969
*I. L. A. Strike Oct. 1, 1971 thru Nov. 27, 1971
+Colliers no longer call at Boston

MASSACHUSETTS PORT AUTHORITY

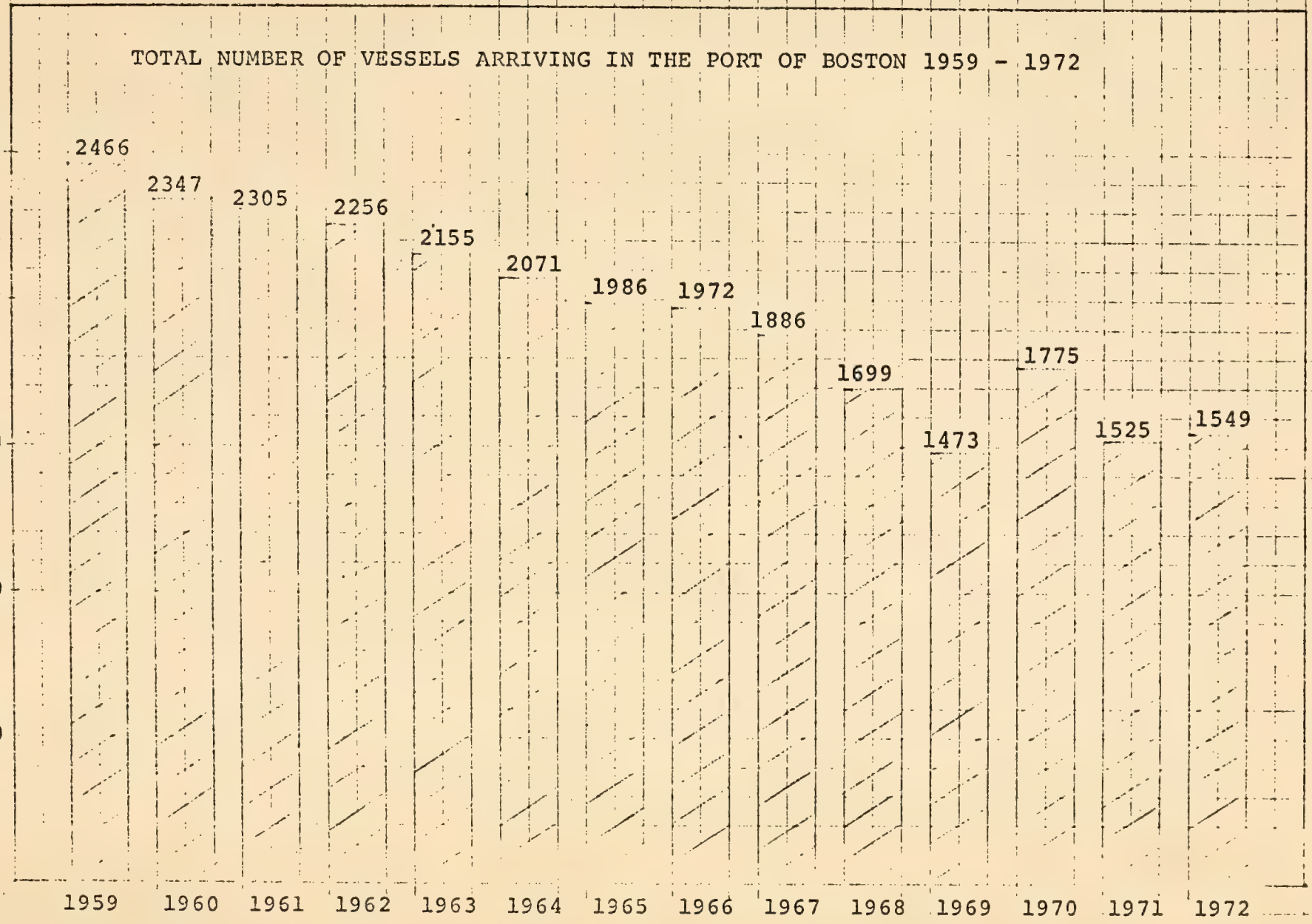
General Cargo Vess rrivals By Month

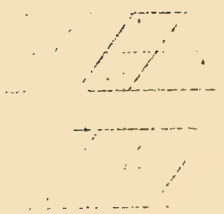
1959 - 2

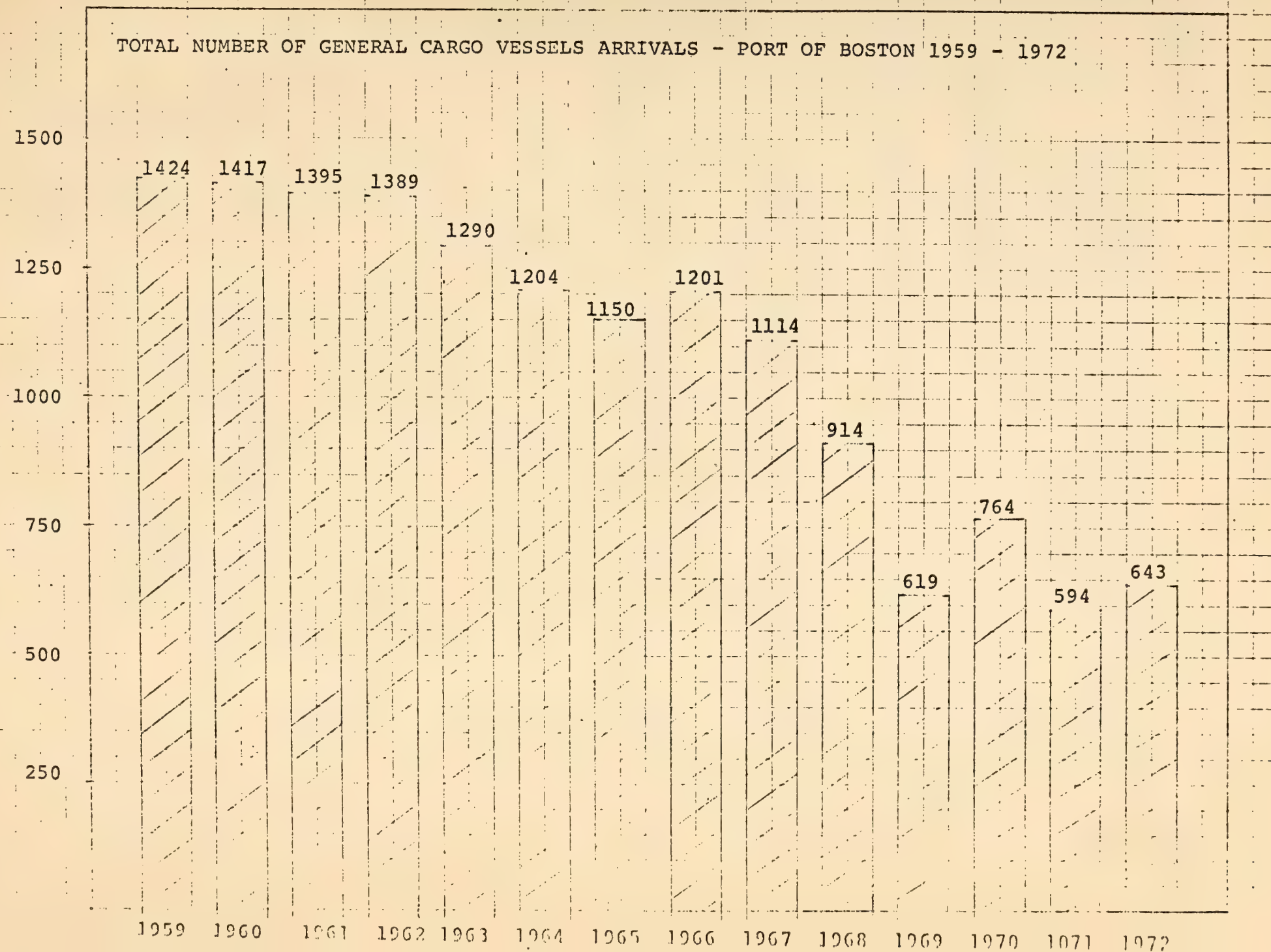
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1959	113	104	119	121	123	116	124	118	123	116	114	133	1,424
1960	114	126	125	137	114	125	105	113	117	114	105	122	1,417
1961	127	103	123	108	119	112	120	108	120	115	124	116	1,395
1962	118	119	129	122	113	118	102	122	116	117	118	95*	1,389
1963	65*	132	123	116	114	104	105	116	107	112	105	91	1,290
1964	112	99	96	101	95	97	113	100	94	101	99	97	1,204
1965	47*	91*	110	115	108	86	88	86	113	112	96	98	1,150
1966	91	95	103	107	99	90	105	98	102	113	96	102	1,201
1967	94	86	111	104	95	108	92	97	87	73	95	72	1,114
1968	92	79	83	91	72	80	80	86	60*	63	82	46*	914
1969	14*	13*	22*	61*	62	52	60	80	69	61	67	58	619
1970	64	49	71	70	62	65	63	65	63	71	72	49	764
1971	68	51	57	58	61	63	54	63	64	04*	06*	45	594
1972	40	39	39	51	70	53	54	59	55	65	56	62	643

*I. L. A. Strike December 23, 1962 - January 26, 1963
*I. L. A. Strike January 11, 1965 - February 13, 1965
*I. L. A. Strike September 9-19, 1968 and September 30, 1968
*I. L. A. Strike December 20, 1968 - April 2, 1969
*I. L. A. Strike October 1, through November 27, 1971

No. 19 C026 5 Sqs. to Inch Quadrille Made in U.S.A.






TOTAL NUMBER OF GENERAL CARGO VESSELS ARRIVALS - PORT OF BOSTON 1959 - 1972
1500
1250
1000
750
500
250
1424
1417
1395
1389
1290
1204
1150
1201
1114
914
619
764
594
643
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
C-4

Bibliography

1. Waterborne Commerce of the United States, "Part I, Waterways and Atlantic Coast," all editions from 1966 through 1971, Department of the Army Corps of Engineers.

2. Annual Report of the Massachusetts Port Authority, all reports from 1971 to 1972.

3. The New Port of Boston...Gateway to the West, Massachusetts Port Authority.

4. The Port of Boston, Mass., "Port Series No. 3, Revised 1967, Part 2," Prepared by the Army Corps of Engineers, Board of Engineers for Rivers and Harbors. Printed by the United States Government Printing Office, Washington, D.C., 1967

5. "Waterborne Commerce of the Port of Boston," Calendar Year 1971, Massachusetts Port Authority, August 21, 1972.

LEGAL BASIS OF THE

MASSACHUSETTS PORT AUTHORITY

(Chapter 91 Appendix Mass. General Laws)

1. The Port Authority is a State agency. It has, among others, the powers (1) "to investigate the necessity for additional facilities for the development and improvement of commerce in the city" of Boston "and facilities for the handling, storage, loading or unloading of freight or passengers at steamship, railroad or motor terminals or airports ..." (*91-3(f)*); (2) "to extend, enlarge, improve, rehabilitate, lease ... maintain, repair and operate the projects under its control ..."

2. The projects under the control of the Port Authority include the "airport properties" and the "port properties" defined as follows:

> The term "port properties" shall embrace all lands, piers and other structures and facilities and all equipment, appurtenances, property, rights, easements and interests acquired or leased by the commonwealth in the port of Boston and in charge of the port of Boston commission.
>
> The term "port of Boston" shall mean all of the tidewater lying to seaward of the following described line: Point Alderton to the northeasterly side of Green Island, thence to the southerly point of Deer Island, thence to the northeasterly corner of President Roads anchorage, thence along the northerly side of said anchorage basin, thence along the westerly end of said anchorage basin and a line in extension thereof to the northerly line of the thirty-five-foot main ship channel, thence along the northerly line of the main ship channel to the Inner Harbor anchorage basin, thence along the easterly end and northerly side of said Inner Harbor anchorage basin to an intersection of the southeasterly side line of Jeffries street extended southwesterly, thence northeasterly along said line extended and the southeasterly side line of Jeffries street to Maverick street, excepting therefrom all of the tidewater now or formerly in the cities of Somerville, Cambridge, and Boston, bounded on the seaward side by a line beginning at a point in the Charlestown section of the city of Boston having coordinates X = 715,225.5 and Y = 4[illegible],[illegible]1.4 on the Massachusetts Coordinate System (Mainland Zone) as established by chapter forty-seven of the acts of nineteen hundred and forty-one, and extending thence, crossing the Charles river by a line bearing south 87° 50' 57" east, parallel to and approximately sixty feet easterly from the center line of the Charlestown bridge to the northerly street line of Commercial street; thence following said street line northeasterly, easterly and southeasterly to the easterly street line of Atlantic avenue; thence following said line of Atlantic avenue and its extension to a point southerly to a point on the extension of a line parallel to the center line of the Northern avenue bridge and approximately fifty feet distant southwesterly therefrom; thence following said line parallel to the center line of Northern avenue bridge south 31° 23' 02" east to the intersection of said line and the harbor line of the westerly side of Fort Point channel as established by section two of chapter one hundred and seventy of the acts of eighteen hundred and eighty; thence southwesterly by said harbor line to point I of the harbor line established by section two of said chapter one hundred and seventy; thence southwesterly by the harbor line by the arc of a circle having a radius of three hundred and thirty-eight feet and it one hundred and fifty-seven feet to point H as established by section one of chapter two hundred and seventy-eight of the acts of nineteen hundred and twenty-six; thence by the harbor line to the left by the arc of a circle having a radius of seven hundred and fifty feet to a point G, said G being the intersection of said line and the harbor line as established by section two of chapter two hundred and thirty-two of the acts of eighteen hundred and seventy-three.
>
> Neither the term "port properties" nor the term "port of Boston" shall include the tracks and transportation facilities of any railroad company [illegible]

The term "airport properties" shall include the General Edward Lawrence Logan International Airport, hereinafter called Logan Airport, and Lawrence G. Hanscom field, together with all buildings and other facilities and all equipment, appurtenances, property, rights, easements and interests formerly acquired or leased by the commonwealth in connection with the construction or the operation thereof and which were in the charge of the state airport management board on February seventeenth, nineteen hundred and fifty-nine, and together with all the land and buildings thereon at Logan Airport formerly owned, used or controlled by the military division of the commonwealth for purposes of the Air National Guard, including a certain parcel of land and the buildings thereon, now or formerly owned, used or controlled by said military division at the Logan Airport, bounded and described as follows:—

Beginning at a point at the intersection of the major and minor axis of the General Edward Lawrence Logan International Airport in latitude three thousand five hundred sixty-four and forty-six hundredths (N3564.46) feet north and longitude ten thousand nine hundred thirty-one and fifty-three hundredths (E10931.53), feet east; thence north fifty-eight degrees thirty-five minutes and thirty-two seconds west (N 58° 35′ 32″ W), six hundred forty-four and forty-one hundredths (644.41′) feet to a point; thence south thirty-one degrees, twenty-four minutes, and twenty-eight seconds west (S 31° 24′ 28″ W) fifty and fifty hundredths (50.50), feet to the point of beginning, point A; thence continuing south thirty-one degrees twenty-four minutes and twenty-eight seconds west (S 31° 24′ 28″ W) six hundred forty-seven and sixty hundredths (647.60′) feet to point B; thence turning and running north, sixty-nine degrees forty-seven minutes and two seconds west (N 69° 47′ 02″ W), six hundred twenty-four and twenty-eight hundredths (624.28′) feet to point C; thence turning and running south thirty-one degrees, twenty-seven minutes and fifty-eight seconds west (S 31° 27′ 58″ W) twelve and seventy-five hundredths (12.75′) feet to point D, thence turning and running north, fifty-eight degrees, thirty-two minutes and two seconds west (N 58° 32′ 02″ W) four hundred seventy-one and thirty-three hundredths (471.33) feet to point E, thence turning and running north forty degrees three minutes and twenty-six seconds east (N 40° 03′ 26″ E), two hundred ninety-seven and eleven hundredths (297.11′) feet to point F; thence turning and running south, forty-nine degrees thirty-six minutes and two seconds east (S 49° 36′ 02″ E) twenty-nine and forty hundredths (29.40′) feet to point G; thence curving in an easterly direction with a radius of one hundred thirty-five and no hundredths (R 135.00′) feet and length of arc of one hundred eighty-nine and fifty hundredths (L 189.50′) feet to point H; thence running north, forty-nine degrees, fifty-nine minutes, and thirty-six seconds east (N 49° 59′ 36″ E), twenty-six and sixty hundredths (26.60′) feet to point J; thence turning and running south, forty degrees, no minutes and twenty-four seconds east (S 40° 00′ 24″ E) six and twenty hundredths (6.20′) feet to point K; thence turning and running north, forty-nine degrees, fifty-nine minutes and thirty-six seconds east (N 49° 59′ 36″ E) three hundred thirty-three and no hundredths (333.00′) feet to point L; thence turning and running south seventy-nine degrees, twenty-eight minutes and forty seconds east (S 79° 28′ 40″ E), sixty-one and thirty-four hundredths (61.34′) feet to point M; thence turning and running south, fifty-seven degrees, thirty-five minutes and thirty-two seconds east (S 57° 35′ 32″ E), six hundred sixty-two and no hundredths (662.00′) feet, to point A, the point of beginning. The location of the intersection of the major and minor axis is fixed by a distance, called longitude, in feet, from a meridian passing through the center of the apex of the dome of the state House in Boston, and by a distance called latitude, in feet, from a line at right angles to said meridian and passing through the said center of the apex of the state House dome and the bearings refer to the true meridian.

3. The Authority has further powers to acquire, for the purposes of the Act, by purchase and exercise of the power of eminent domain, both public and private lands "which it may deem necessary for carrying out the provisions of this act" (§1-3(k)), which include construction or operation of any project as defined (§1-4). The Authority may also sell or lease buildings or structures or any lands or rights or interest in lands ... whenever the same shall, in the opinion of the Authority, cease to be needed for "the purposes of the act." (§1-4). Port or airport properties, however, may not be sold without prior approval of the Governor and Council. The Commonwealth has given blanket consent to the use by the Authority of all lands owned by it which are deemed by the Authority to be necessary for the construction or operation of any project, again with prior approval of the Governor and Council (§1-4).

4. The Authority is under a duty to maintain and keep in good condition and repair, the projects (§1-23).

5. §1-40 grants authority to the BRA, among others, to cooperate with the Authority and enter into agreement with it for "any of the purposes of this act". All such agreements must be on reasonable terms and conditions as may be determined by the Authority and by the BRA having "jurisdiction in the premises".

6. In Loschi v. The Massachusetts Port Authority (334 N.E.2d 901, 1968) it was held that the extension of port runway on tidal flats of Commonwealth held for potential airport use at the discretion of the Governor and Council was within the Authority's statutory powers to control the operation and maintenance of the airport and extend and improve projects under its control.

7. The Massachusetts Port Authority may participate in Federal funds appropriated for the building of control tower at Logan Airport to the extent enjoyed by its predecessor (Op.Atty.Gen. May 20, 1958, p. 100).

8. Title to the port properties is vested in the Authority (§1-6). Its powers include "the control, operation and maintenance of the properties. The Authority was entrusted with the duty "to make all necessary plans for the development of the port ..., to concern itself with the condition and location of piers, ... floatage, lighterage, rates, rules, regulations, ... dockage, wharfage, waterfront labor conditions, grain elevator and warehouse facilities ... "

9. The State Department of Public Works was reserved the right, if not in conflict with "the purposes, powers and plans for the development of the port ... of the Authority", to excavate and dredge mooring basins for yachts and small craft, dredge channels, construct shore protection, remove hulks and wrecks (§1-6).

10. Note that the Authority is exempt from a statutory requirement of a license from the Department of Public Works for work done in tidewaters but the exemption does not cover work outside the port (*Op.At.Gen. August 20, 1959, p. 39*).

11. The Authority is exempt from taxation with respect to the port and airport (§1-17) except lands acquired by the Authority which were subject to taxation on the assessment date next preceding the acquisition, leased for business purposes. The properties are then to be taxed as if the lessees were the owners. There are special conditions which prohibit enforcement of payment of these taxes by lien or sale of the land (but payment may be enforced by sale of the leasehold interest and of the building).

12. The Authority may call, among others, upon the BRA for the purpose of assisting it in making investigations, studies, surveys and estimates, and in policing the projects (§1-23).

13. The power of the Authority is to be liberally construed (§1-17). All other General or Special Laws which are inconsistent with the provisions of the Act are inapplicable to the provisions of this Act (except 141X, s. 90, which prohibits monopoly of airport, and s. 354, which deals with the turnpike) (§1-20).

RELATIONSHIP BETWEEN THE BRA AND THE PORT AUTHORITY

As shown, the Port Authority has vast powers. But they are limited to the object of managing the projects under its jurisdiction. (For example, it has been held that the Lawrence Airport had no power to grant rights in airport property to the City of Andover for the purpose of digging water wells *(Op.Atty.Gen. August 13, 1959, p. 36; c. 79, §30.51X, Supp. 123.)*

The Authority has wide discretion as to the operational aspect of the port and airport. It is, except in the event of corruption, fraud and alike, the sole arbiter on whether or not a certain property is required for the future operation of the port or airport (Loschi v. Mass. Port Authority *239 N.E.2d 411, 1968*).

The BRA has wide powers to eradicate slums, rehabilitate blighted areas, relieve congestion of population and assist in rebuilding the city. The two authorities have jurisdiction over the same area. But Chapter 91 specifically emphasizes that the powers of the Port Authority should be liberally interpreted and other laws which are inconsistent with Chapter 91 are deemed inapplicable.

Against this background it seems to me that: 1) if the BRA wishes to include in its project an area which is owned by the Port Authority or an area which the Port Authority deems necessary for future port or airport operations, the BRA cannot, without specific legislative authority, take that land or effectuate the project.

2) If the land is neither owned by the Port Authority nor claimed by it as essential to future or present Port operations, I see no reason why, if all other conditions of the law are satisfied, the BRA could not set up an urban renewal project or a land assembly and redevelopment project.

> Note that the legitimate motive for action by these two authorities is different. The Port Authority may take land for port operation only; the BRA for urban renewal only. The former has no business at slum clearance and redevelopment; the latter has no business to seek a more efficient port operation except, perhaps, in connection with traffic congestion affecting the population (not the operations of the port).

3) There may be some statutory authorization for the BRA, with the consent of the Port Authority to act not only with a view to urban renewal, but also with a view to port operation. The BRA is authorized to "cooperate with the Port Authority and to enter into any agreement ... (c) for any of the purposes of this act". (*c. 91 App. §1-4C Supp. 166*) (The language is not free from doubt because the section deals with the South Boston transportation center and the section describes the other party as the authority "having jurisdiction in the premises").

The Port Authority may also sell lands and buildings which were purchased for the purpose of the act whenever they cease, in the opinion of the Port Authority, to be needed for that purpose (*§1-4 Supp. 165*). With the cooperation of the Port Authority the BRA, therefore, can set up an urban renewal project.

The BRA has the general power to enter into contracts necessary or convenient to the exercise of the powers granted by the Housing law (§26P). It is also assumed that the BRA may assist the Port Authority since the latter may call upon the former (as a planning board) or on the City of Boston to assist it in investigations, studies, surveys and estimates (*§1-23*).

NUMBER OF WATERFRONT FACILITIES	
1	
2	
3	

PORT AND HARBOR FACILITIES

PIERS, WHARVES, AND DOCKS

One hundred and fifty-six piers, wharves, and docks are described in this report for the port of Boston. Twenty-nine of these waterfront facilities are located in the Outer Harbor and one hundred and twenty-seven, in the Inner Harbor. Each of the facilities is described under a reference number in the table of Piers, Wharves, and Docks beginning on page 26. These reference numbers designate facility locations on the accompanying Port Facilities Maps Nos. 1 through 5. Map No. 1 includes all of the shoreline of the port and defines the areas covered by Maps Nos. 2 through 5, which are enlarged to give greater detail. The following table shows the number of waterfront facilities in various segments of the port and the map and reference numbers of facilities in each area.

LOCALITY	NUMBER OF WATERFRONT FACILITIES	MAP NO.	P.W.D. REF. NOS.
OUTER HARBOR			
Winthrop:			
Winthrop Head.....	1	1	1
East Boston:			
Belle Isle Inlet.....	1	1	2
Dorchester:			
Neponset River.....	5	5	130-134
Quincy:			
Neponset River.....	2	5	135-136
Town River.....	8	5	137-144
Weymouth Fore River.....	5	5	145-149
Braintree:			
Weymouth Fore River.....	3	5	150-152
Weymouth:			
Weymouth Fore River.....	2	5	153-154
Eastern Neck and Hingham:			
Weymouth Back River.....	2	1	155-156

T63 F C.1
Frankel, E.G.
Seaport study; Second draft.